The Mining Journal

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Now It's Up To Britain

THE Canadian Trade Mission, which has returned to its home land after a most intensive four weeks' visit to this country, can congratulate itself on a job well done.

The economic necessity for Canada to switch a sizeable portion of her imports from the United States to this country or other sterling areas is as self-evident as Britain's need to expand her exports to the dollar area. The gap between the realization of what needs to be done and the initiation of concerted action to meet that need is, however, a wide one. It is the outstanding achievement of the mission that a first bridge has been thrown across this gap. It remains for this first temporary structure to be replaced by a permanent and substantial traffic lane, the construction of which must rest very largely with British enterprise. That a mission of such calibre should have crossed the Atlantic merely to convince us that we had a market in Canada is indeed a reversal of normal rôles and has presented British industry with an opening which is unprecedented.

This splendid opportunity is one which our own mining machinery manufacturers, if they will, can take a leading part in following up, for the mission has found that the United Kingdom can supply nearly all categories of mining equipment which the Dominion needs. Canada's mining industry is already producing to the value of some $2,000,000,000 a year, and the expectation is that it will continue to expand at about three times the rate of Canadian industries as a whole. At present, the bulk of Canada's mining industry imports come from the United States, and it is as well to be clear why this is so.

Nothing that the mission has seen during its visit would seem to suggest that in terms of quality, and still more of price, our British manufacturers have anything to fear from American competition. What must be recognized, however, is that Canadian engineering products are geared to American engineering standards, and it is no use whatever attempting to enter the Canadian market unless the British manufacturer is prepared to adjust his product to these standards. Secondly, it must be realized that physical conditions in Canada, with their rapid change from summer heat to winter cold, impose certain requirements on equipment which again must be accepted and provided for.

If a Canadian firm is interested in a British product, but only in a modified form, that product must be supplied with the required modification, or the company will turn back to America for it. Furthermore, the Canadian buyer is geared to American selling habits and this must be clearly understood. This involves the adoption—or better still, hiring—of American salesmanship, establishing competitive advertising schedules, and being prepared to tender and quote in terms familiar to the Canadian. A piece of equipment quoted in £ s. d. f.o.b. some British port will never sell against a competing American quotation in dollars with a firm delivery date at the point where the equipment is to be used.

Against these difficulties must be set the desire of the Canadians to buy British and—more specifically in the mining field—the fact that the likely imposition of base metal tariffs in the United

States against Canadian minerals will itself tend to swing a Canadian mining purchaser away from the United States, if only on grounds of sentiment.

In the last analysis, delivery dates may well be the decisive factor, and on this point the Canadian mission is specific. If a British manufacturer really wants to get into the Canadian market, he must make some initial sacrifice to establish himself. The most important of these sacrifices is probably to put Canadian deliveries at the top of the priority list. You cannot break into a new market by letting orders take their turn. It follows from this that mining machinery manufacturers who are tackling the Canadian market must organize themselves to do so. To leave the execution of export orders to the works management is to court disaster. Export management is a specialized function requiring specialized know-how, and this must be acquired, in addition to, and quite apart from, acquiring an adequate sales organization on the other side.

All these problems are in no way insurmountable, and the British manufacturer who makes the effort is assured of energetic co-operation from the Canadians. Particularly encouraging, therefore, has been the surprising number of British mining machinery manufacturers not hitherto selling in Canada who, in the past few weeks, have expressed their definite intention to members of the mission to come into the Canadian market. Even so, a small British manufacturer may have difficulty in tackling the market alone, and one of the most important decisions to come out of the recent discussions is the decision by the Dollar Export Council to encourage by positive action the formation of small co-operative export groups of manufacturers selling non-competing products to the same industry. The significance of this decision for mining machinery manufacturers is particularly apparent in view of the widespread and isolated location of many of Canada's mines.

It will be recalled that one of the points which emerged from *The Mining Journal* survey of some two years ago (*vide The Mining Journal*, March 23, 1956, pp. 360 and 361) was that a number of manufacturers were actively interested in forming such groups if other interested manufacturers could be found. We have no doubt ourselves that this approach is the correct one, rather than reliance on an agency which in many instances is carrying too many lines to apply itself intensively to any one. In a co-operative venture such as is envisaged, each firm would presumably supply one or more members of its own staff for permanent sales duty in Canada, and would thus have a continuous flow of on-the-spot reports to guide it, and there would be no danger that its particular interest might be subordinated to that of some other manufacturer.

The mission's visit will be actively followed up both in this country and in Canada. Britain is to send a strong return trade mission to Canada in the spring, and meanwhile steps are being taken in Canada to draw the attention of purchasers to the desirability of planning their requirements sufficiently far ahead to give British suppliers, who are handicapped by the factor of distance, a reasonable chance of meeting delivery dates. Moreover, the campaign to encourage the Canadians to buy more British goods is to be intensified, and in this connection all United Kingdom trade commissioners in the Dominion will be meeting the members of the mission in January to discuss ways and means of stimulating British sales.

It need hardly be stressed that a decision to enter the Canadian market should not be lightly undertaken. A thorough investigation of the market should first be made, preferably by the senior member of the enterprise concerned. Having made up his mind to take the plunge, the manufacturer should be firmly resolved to give the market a fair trial over a period of several years.

Though the difficulties must not be underrated, it has to be remembered that the rewards are rich indeed. Moreover, the British manufacturer who has shown himself capable of securing and maintaining his position in this exacting dollar market can be assured of his ability to compete successfully in any other country.

OUTLOOK FOR AUSTRALIAN MINING

Dr. J. A. Dunn, Mineral Economist to the Bureau of Mineral Resources, considers that the Australian mineral industry, over the next 10 to 20 years, will require an expenditure on the capital side of several hundred million pounds if it be possible to expand production in line with the size of mineral reserves available, which is a question, not only of Australian development, but also of the development of overseas markets as well. The value of Australian mineral output exceeded £200,000,000 in 1956, for the first time.

Regarding the Australian tin position, Dr. Dunn notes that domestic industrial consumption of tin is 2,400-2,500 tons per year of which some 450 tons must be imported. Production should be increased by about 500 tons annually from the Ravenshoe Company in Queensland, which has just commenced work, but The Broken Hill Proprietary Co.'s tin plate works at Port Kembla, New South Wales, will increase consumption by 1,000 tons per year. By 1960, or somewhat later, tin requirements may rise to 4,500 tons. It is pointed out that future requirements and future prices suggest a vigorous prospecting campaign for tin is warranted. This opinion is endorsed, but activity should be directed to the lode tin fields which, in general, have been poorly worked and inadequately explored; there are distinct possibilities for lode mining, but prospects for worthwhile alluvial discoveries are weak.

The forecast of the chairman of North Broken Hill Ltd., on the effect of lower metal prices on the company's immediate future, applies to all companies on the line of lode. His statement was to the effect that unless metal prices improve markedly in the next few months there will be a relatively small profit from mining activities. The investment position is very sound, but reduced mining profits will mean reduced dividends. Mine development can be expected to continue at normal rate, and in this regard the directors are optimistic about the long-range future. In regard to mine operations, diamond drilling in the north section has supplied valuable information on the work of opening up the southern orebody, but has not added greatly to knowledge of the orebody below the 4,000 ft. horizon, and until suitable drilling sites have been prepared, the extent of further deep drilling will be limited.

Broken Hill South Ltd., apart from the active prospecting of its own leases, has done much in the investigation of other mineral fields in different parts of Australia. At the parent mine, Broken Hill, ore reserves are shrinking, due primarily to extraction of smaller tonnages of remnant ore in the Barrier Central leases—the old Broken Hill Proprietary, Central, and Block 10 leases—but there has been some shrinkage in the South Mine itself, which has been remarkable for the maintenance of the tonnage of reserves over the past 10 years or more. The company is intensifying the search for ore and at depth has located minor, but useful, additions to reserves, which support the view that an untested lode-bed exists beyond the areas covered by mining in the past. To the west of the main mine exploration is proceeding in a large, low grade lode channel.

Amongst the subsidiaries, Zeehan Mines Pty. Ltd., Tasmania, working the Oceana Mine, treated 15,268 tons of ore and recovered 2,218 tons of lead concentrate assaying 73.8 per cent Pb. and 30.9 oz. silver; a dividend, the second, of £50,000, was paid. Mines Exploration Pty. Ltd., working the Conrad Mine, in New South Wales, produced about 10,000 tons of ore; an unprofitable tonnage, but the venture is being pursued. This lode has been an attractive proposition since the early years of mining, but being refractory, was idle for some 45 years, due to treatment difficulties, for the ore contains silver, galena, zinc blende, copper sulphide, arsenopyrite and stannite. Two other subsidiaries of Broken Hill South are Cobar Mines Pty. Ltd., and Cobar South Pty. Ltd., at Cobar, New South Wales, which hold, amongst other areas, leases previously held by New Occidental Gold Mines. Work here has not advanced far since the acquisition of the leases.

The year's operations by Mount Morgan Ltd., Queensland, have been depressing. The fall in the price for copper has reduced the company's revenue by £750,000, and this decline has been accompanied by a reduced throughput of ore and lower values, together with the effects of industrial trouble.

The general position has now improved considerably. It is reported that greatly increased tonnages of ore are being mined and there is a considerable improvement in grade of both gold and copper, as the result of which, metal production has returned to a satisfactory level. For a substantial part of the financial year, mining was in a poor zone which in open cut working, could not be bypassed, or compensated from higher grade sections. The extent to which a profitable position can be maintained will depend upon the overseas copper market; in the past financial year the average price realized for copper was £368, which was £102 per ton lower than in the previous year. The Australian price which is being held at present is £330 per ton. An enquiry into the copper industry and presumably into possible directions for assistance has been made by the Tariff Board.

It is also hoped that an amendment to the sulphur bounty act may assist in encouragement for the use of pyrite for manufacture of sulphuric acid, instead of imported brimstone.

E.C.S.C. CHALLENGED

The 1956 ruling of the European Coal and Steel Community which governs the buying and selling of Ruhr coal has been challenged recently by a German coal wholesaler.

In 1956 the Ruhr coal-selling cartel, GEORG, was replaced by three Community-controlled selling agencies which were responsible for the internal marketing of Ruhr coal. This meant that except in special circumstances merchants could not deal direct with collieries but were obliged to purchase supplies from the approved agencies.

Judgment of the Luxembourg Court of Justice, given earlier this month, will allow a temporary relaxation and enable merchants to buy direct from the collieries. The stay is granted pending the settlement of a number of other suits aimed at testing the legality of the ECSC selling organization.

A report published by the United Nations Economic Commission for Europe has forecast an appreciable increase in the use of known coal. At the moment almost 20 per cent of the total European consumption of solid fuel is provided by brown coal (on a C.V. basis) and the exploitation of these resources is a major factor in the economic development of many of the nineteen European countries in which brown coal is mined. Combined European output rose from 242,000,000 tons in 1937 to 516,000,000 tons in 1955 with Russian output showing the biggest individual national increase—from 18,000,000 tons to 115,000,000 tons in the 18-year period reviewed. Annual compound rate of increase in European brown coal production is at present 7 per cent and is expected to continue at this rate for the next few years.

METALS AND THE EUROPEAN COMMON MARKET

The metal industry in relation to the European Common Market is discussed in one of the introductory articles to *Metal Statistics*, 1947-56, published by Metallgesellschaft A.G., of Reuterweg 14, Frankfurt am Main. It is pointed out that the common market countries have, between them, a not inconsiderable mining and smelting works output, as the accompanying table shows. However, in order to meet the demand for metal in full, ores, other metalliferous raw materials, and crude metals have still to be imported. A large portion of the semi-processed and finished metal products from the common market countries is exported to consumers outside the common market area. It is, therefore, important to the metal industry in the embryonic European common market that good trade relations with the remainder of the world are maintained.

The formation of a free-trade zone, within the framework of O.E.E.C., complementary to that of the common market, is under discussion. It differs primarily from the common market plan in that the free-trade zone countries of the O.E.E.C., while abolishing customs duties (over a transition period) within the zone proper, would still be at liberty to formulate their own individual policies with regard to trade, customs duties and tariffs in relations with countries outside the O.E.E.C. free-trade zone.

The efforts to create a free-trade zone, which Great Britain, with her very important metal-processing industry, is likely to join, indicate quite clearly how essential it is that the countries forming the common market should avoid anything which could weaken the competitive capacity of their own metal industry. Nor should it be forgotten that efforts on the part of the members of the common market to increase their economic self-sufficiency in the metal industry sphere could lead to a reduction of business opportunities, which would be to the benefit of those countries whose economic policies were more liberal.

THE METAL INDUSTRY IN THE COMMON MARKET COUNTRIES AND THEIR ASSOCIATED OVERSEAS TERRITORIES

	Metal content in 1,000 tonnes				
1956	*Al*	*Pb*	*Cu*	*Zn*	*Sn*
Mine production ...	2182.7	137.8	250.1	406.1	15.4
Smelter production ...	360.9	374.2	601.0	673.8	43.2
Consumption	417.4	438.5	755.4	544.9	29.2
Semi-manufactures exported (est.) ...	50.0	10.0	175.0	45.0	2.0

"The Mining Journal" sends to all its readers everywhere best wishes for a Happy Christmas and a Prosperous New Year.

Mine Hoisting in

IN 1948, Ontario passed regulations requiring hoists with ropes over 1 in. in diameter to have drums at least 80 times the rope diameter and hoists with ropes 1 in. in diameter or less to have drums 60 times the rope diameter. Sinking and development hoists are required to have drums at least 48 times the rope diameter. While no such regulations exist in other provinces except British Columbia, it is understood, in general practice the same results are obtained.

Since ropes less than ¾-in. dia. are seldom used, even for sinking, the new regulations have practically eliminated hoists with a dia. less than 36 in. A further requirement allows only three layers of rope to be wound on the drum. While these regulations were not applicable to existing installations, a large percentage of the hoists did, in fact, fulfil these requirements and today roughly 70 per cent of the mine hoists offer satisfactory winding conditions.

Modern Trends

All but a few installed hoists are cylindrical. Conical style drums have decreased in popularity due to their large size and inflexibility. The majority of Canadian hoists are of the double-drum type with the drums in parallel.

The positive or tooth-type clutch has largely replaced the friction-type during the past ten years. There are two types of toothed clutch in common use, namely the internal expanding and the sliding two- or four-arm type. About 50 per cent of the hoists are double-clutched.

Brakes on all larger hoists are of the parallel-motion, post type. Basswood or woven fabric (raybestos) linings are used. Emergency brake application is regulated to provide safe stopping at any point in the shaft. Brakes and clutches are usually interlocked both electrically and mechanically.

Two large push-button operated hoists are in service at Sudbury, Ontario, and two others at Asbestos, Quebec. Three of them are handling ore.

The friction-type hoists installed, or being installed, are push-button operated as well. They all incorporate the best of European features with added requirements and safety devices necessary for operation in Canada. In recent years the friction hoist has been the object of much study and research not only by mining, government and consulting engineers, but also by wire rope manufacturers, hoist builders and electrical firms.

While the friction or Koepe hoist had been in use in Europe for 75 years, none had ever been used in Canada. The first friction hoists installed on the American continent were of Swedish design. However, Canadian firms are now able to compete with European firms for friction hoist business.

Electric Hoists, Motors and Controls

Approximately 85 per cent of electric hoist drives in Canada are of the wound rotor induction motor with rotor resistance control type. The other 15 per cent are of the direct current Ward-Leonard or Ilgner Ward-Leonard types.

The largest hoist motor in Canada is a D.C. machine rated at 3,200 h.p. The most powerful hoist employs two 3,000 h.p. D.C. motors.

As elsewhere, the trend in Canada with A.C. hoists is towards contactor-operated metallic rotor resistances in preference to liquid rheostat controllers. Simplified maintenance, improved speed regulation and elimination of the humidity problem are the main reasons for this preference.

The location of the metallic resistors in a room separate from, but adjacent to, the hoist room is becoming common with larger A.C. hoist installations. This arrangement permits exhausting heat from the resistors to the outdoors and so keeping it away from the hoist operator during warm weather.

D.C. dynamic braking is used on a few A.C. hoists in Canada and appears to meet generally with the liking of hoist operators.

Rotating amplifiers such as the rototrol and amplidyne are now commonly used with D.C. drives, giving the hoist operator a very close and smooth control of the machine.

Canada

There are roughly 600 mine hoists in operation in Canada, writes C. M. Barrett, Mechanical Inspector of Mines, Ontario Department of Mines, in the Sixth Commonwealth Mining and Metallurgical Congress publication, "Mining in Canada". This figure includes production as well as sinking and development hoists.

Push-button control has been incorporated on several large skip hoists. One drum-type hoist with push-button control on the cage is in use at a Quebec mine.

Wide Range of Ropes

All types and sizes of mine hoisting ropes are used throughout the Dominion. Langs Lay would appear to be more popular than regular Lay with flattened strand and round strand about equal. Most hoisting ropes are preformed, especially those over 1 in. in dia. Galvanized rope is being used with splendid results, particularly with the drawn galvanized wire. Canadian ropes predominate with some coming from Britain in recent years. Some wire is imported from Britain and the U.S. and the drawn galvanized from the U.S.

The longest hoisting rope in Canada (19,000 ft.) is believed to be operating in a slope at a colliery of the Dominion Coal Co. in Nova Scotia. Many vertical shafts in Sudbury, Kirkland Lake and Timmins are about 4,000 ft. deep. An internal shaft at the Lake Shore mine in Kirkland Lake reaches almost 8,200 ft. below surface. This is believed to be the deepest mine in North America.

The study of wire rope is being carried out throughout the Dominion. Almost every province reports a decided increase in rope life during the past few years.

Mine Shaft Conveyance

Aluminium cages have come into prominent use primarily as a means of increasing pay-loads. However, steel cages are used where possible. Double-deck cages and cages over or under skips are quite common. Cages are now fitted with approved safety catches and most provinces require satisfactory tests before men are allowed to be transported. Many mines have constructed wooden towers where shaft conditions are simulated to carry out dog testing so as not to interfere with regular shaft hoisting. All dogs are tailor-made for the shaft in which they are to operate.

By far the most common type of skip in use today is, of course, the Kimberley or overturning type. In recent years, however, several types of bottom dump skips have been taken into use. At the Canadian Johns-Manville Co. Ltd. in Quebec, the skips employed are of the Anaconda type where the sliding door is opened by arms, rollers and chains while the skip is being hoisted through the dump. At International Nickel and Steep Rock Iron Mines, the swing-out drop-bottom type is used with excellent results.

Other Hoisting Methods

At Wabana Mines, Newfoundland, Gypsum, Lime and Alabastine, Canada, Ltd., in Ontario, Steep Rock Iron Mines Ltd., in Northern Ontario, and in the coal mines of British Columbia and Alberta, conveyor belts are used to raise the ore. Capacity varies from 100 tons per hr. at Gypsum, Lime and Alabastine to 1,100 tons per hr. at Wabana.

At the Helen Mine (Algoma Ore Properties Ltd.) a mono-rail system is employed to bring ore from a vertical depth of approximately 1,600 ft. along a 22 deg. incline tramline tunnel and deliver it to the mill. This is believed to be the first hoisting arrangement of its kind on the American continent.

Another interesting installation is at the Bethlehem-Steel Co.'s magnetite quarry at Marmora, Ontario, where ore is hoisted up the side of the quarry on a 45-deg. incline. The 20-ton cars, loaded in the quarry by trucks, raise 24 tons of ore. Two 1¼-in. dia. hoisting ropes are attached to each car. The hoist is a 12-ft. dia., 80,000 lb. rope pull, double-drum, cylindrical C.I.R., 1,250 h.p. A.C. hoist operated by remote control. The hoistman is situated at dump level in the steel headframe, so that he can see both the loading and dumping of the cars, but is unable to see the hoist.

Another novel installation is at the Princess Colliery of the old Sydney collieries in Nova Scotia, where two 1¼-in. dia. steel cables carry a conveyor belt. The ore is brought 3,500 ft. along the slope to surface. The cables are ordinary mine hoisting rope and support the belt on each side.

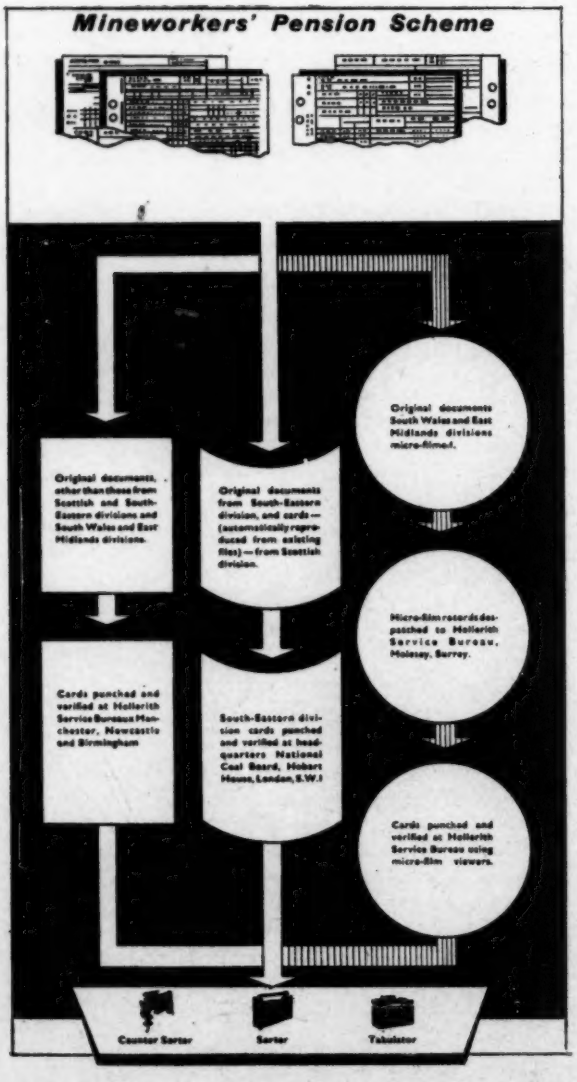
The illustrations show, at left, the open pit mine at Marmora, Ontario. Here the crushing and pelletizing plants and magnetic concentrator are seen; centre, the pithead and secondary plant at Wabana Mines, Bell Island, Newfoundland, the workings of which extend three miles below the sea; and at right, Algoma's Helen and Victoria Mines in Ontario. At this site, low-grade siderite was first produced opencast, then underground

THE Medical Service of the National Coal Board decided to investigate the possible influence of such indirect contributory causes as fatigue and atmospheric conditions on accidents in the mining industry. The investigation was entrusted to the Department of Psychology of University College, London.

To provide representative statistics a group of eight collieries was selected and the investigation continued over twelve months. A report on each incident involving injury was necessary and the form designed for this purpose included six items of data to identify the report, the individual concerned and the broad and precise location of the accident. In addition, there were 21 pieces of information concerning time, type and condition ruling at the time of the accident.

Under these 27 headings and on each report there were 16,660 possible "replies". With approximately 12,000 reports to analyse, the problem was quite formidable.

The Department of Psychology possesses a 21-column punched-card installation, which is used for other statistical work. By a remarkable extension of the use of multiple punching and the exercise of considerable ingenuity, it proved practicable to squeeze the possible 16,660 facts into the available card size (2¾ in. by 2 in.).


Mineworkers' Pension Scheme
Original documents, other than those from Scottish and South-Eastern divisions and South Wales and East Midlands divisions.
Original documents from South-Eastern division, and cards — (automatically reproduced from existing files) — from Scottish division.
Original documents South Wales and East Midlands divisions micro-filmed.
Micro-film records despatched to Hollerith Service Bureau, Molesey, Surrey.
Cards punched and verified at Hollerith Service Bureaux Manchester, Newcastle and Birmingham
South-Eastern division cards punched and verified at headquarters National Coal Board, Hobart House, London, S.W.1
Cards punched and verified at Hollerith Service Bureau using micro-film viewers.
Counter Sorter
Sorter
Tabulator

PUNCHED-CARDS—III

Punched-Card

The normal methods of punching 21-column cards will allow of accommodating 231 facts (11 positions in each of 21 columns) if a single hole is punched in each column, and 609 facts if simple over-punching combinations are used. If, however, all possible combinations of the eleven positions in a column are used, 2,047 combination patterns are possible and 42,987 patterns in a full card, counting one column to a heading.

By using combinations of column as well as combinations of patterns, the desired capacity was achieved without necessitating involved coding machining operations. In practice, punching and sorting operations proved reasonably speedy. Quite a variety of statistics are being extracted in this way and these are providing a basis for the study of a number of factors which have not previously been considered in detail.

Miners' Pensions

The welfare of the coal miner and that of his dependants is closely studied by the U.K. Government, the National Coal Board, and the National Union of Mineworkers. One of the most important institutions for the welfare of the coal miner and his family is the Mineworkers' Pension Scheme.

The scheme, which is administered jointly by the National Union of Mineworkers and the National Coal Board, is supported by approximately 80 per cent of all mineworkers in Great Britain. It is a voluntary scheme, financed by members' contributions deducted from weekly earnings, and by employers' contributions, supplemented by a substantial deficiency payment by the employers spread over a period of years. Retirement pensions are payable at age 65 for men and 60 for women. There is, in addition, a comprehensive range of benefits covering earlier retirement through disablement or withdrawal from the industry, and including provision for widows and dependent children.

At its inception in January, 1952, the Mineworkers' Pension Scheme had to embrace many varied individual and local schemes already in operation. At the establishment of a national unified pension scheme of so extensive and complex a character, many estimates had necessarily to be tentative. In 1954, however, it was decided that sufficient data and experience had been accumulated to enable more reliable actuarial assessments to be made.

The date for the review was April 5, 1955, and information had to be obtained from the nine English, Welsh and Scottish Divisions administered by the National Coal Board and extracted from the records relating to cover 600,000 past and present members and pensioners.

The preparation of punched-cards from the miners' record sheets presented a punching and verifying commitment

Opposite is a flow chart of mineworkers' pension scheme permanent records. Illustration by courtesy of The British Tabulating Machine Co. Ltd.

Systems in U.K. Mining Investigations

of considerable magnitude, with at least one feature of unusual interest.

Cards for the Scottish Divisions were produced by the National Coal Board's own mechanized card installation in Glasgow, and those for the South-Eastern Division at the National Coal Board headquarters in London. This left the work of punching and verifying some 550,000 cards to be shared between the service bureaux of the British Tabulating Machine Co. at Manchester, Newcastle, Birmingham and Molesey (Surrey). It was possible to punch from original documents at each of the three bureaux with the exception of Molesey. The original record sheets for 200,000 members could not be sent to Molesey, and it was accordingly decided to punch and verify from micro-films with the aid of viewers. It is believed that this was the first time that cards in any substantial quantity had been prepared in such a way. The operations were completed within the time limit and proved entirely successful.

All the required detail in respect of members (both active and retired), and also of widows and children, was contained well within the compass of an 80-column card. The cards were processed in the National Coal Board headquarters installation, using counter-sorters, sorters and tabulators, and provided impressive series of tabulations.

Mechanized Mining

Punched-cards are being used not only in the mining industry but also by a number of its leading suppliers. Thus Jeffrey-Diamond Ltd. are using appropriate procedures to draw up new equipment schedules each year, based on the known production capacity of the works and the sales orders on hand.

From the information supplied to the stock records department to assist in the preparation of production orders for works, the system gives, in addition, certain sales data, provides excellent information for the purchase department, prepares all cost office analytical data and facilities in the costing itself, prepares a payroll, and takes care of both the sales and the purchase ledger accounting. In short, finance, purchase, sales, cost and stock record sections are continually being fed with all the information they require.

DISTRIBUTION OF ACCIDENT REPORT ITEMS ON A 21-COLUMN CARD

Card Column	Description	No. of Facts			Positions Used
1	Colliery.	8	=	8	A to 6
1	Other man involved, or not.	2	=	2	8 and 9
2 3	Report number.	7000	=	7000	A to 9 A to 2
3	Lateness of report after accident.	4	=	4	6 to 9
4 5	Man's Lamp Number.	7000	=	7000	A to 9 A to 2
5	Man's usual occupation.	3	=	3	7 to 9
6	First two letters of surname.	26+26	=	52	O to A + 5 to 9
7	Date of birth.	31	=	31	A to 5
7	Time of accident after starting shift.	12	=	12	6 to 9
8	Shift occupation of man.	13+53+64	=	130	A, O, + 1 to 9
9	Man's home town or village.	125	=	125	O to 9
10	Date of accident (year, month, date of month and 3 pts. of wk.).	3+12+31+3	=	49	A to 9
11	Time of day of accident.	9	=	9	O to 4
11	Day, afternoon, night or other shift.	4	=	4	5 to 7
11	Shift completed or not.	2	=	2	8 and 9
12	Place of accident.	14+9+11+30	=	64	A; O, and 1 to 9
13 9	What happened, Part I.	9x11x10	=	990	A to 9 A only
14 11	What happened, Part II.	8x12x10	=	960	A to 9 A only
15	Where and what injuries.	28+20	=	48	O to 5, & 6 to 9 plus A.
16	Duration of absence due to injury.	104	=	104	A to 7
16	Whether started immediately.	3	=	3	8 and 9
17	Length of coal face.	7	=	7	A to 4
17	General remarks.	8	=	8	5 to 9
18	Dry bulb temperature.	10	=	10	A to 8
19	Wet bulb temperature.	9	=	9	A to 7
20	Ventilating air speed.	9	=	9	A to 7
20	Wet or dry working conditions.	3	=	3	8 and 9
21	Distance of workplace from shaft bottom.	7	=	7	A to 2
21	Thickness of coal seam.	7	=	7	3 to 9
				16,660	

Above is the distribution of accident report items on a 21-column card. Illustrated by courtesy of The Powers-Samas Organization

Between 25,000 and 30,000 cards are punched and verified each week, and, in addition, over 16,000 cards are filed away into work in progress.

Punched-card systems are being imaginatively applied to the collection of data from channels not normally exploited for such purpose. Further extensions of the system are constantly being sought in order to make accurate information available in the minimum of time and with the minimum of clerical labour.

Still further possibilities are presented in large mining groups by electronic "brains" such as Leo (Lyons Electronic Office), Hec (Hollerith General Purpose Electronic Computer) or the PCC (Programme Controlled Computer) which is made by the Powers-Samas Organization. Despite their high cost, such machines would assuredly pay for themselves very quickly, possibly in conjunction with a punched-card system, if set up to handle the routine administration of a group of mines.

The resources of the electronic computer are so great that the introduction of such machines tends to result eventually in the establishment of a complete integrated data processing system. This is the idea towards which progressive management is now aiming, for it offers advantages far greater than can be obtained by even the most careful integration of clerical tasks under existing conditions. It promises no less than the effective production, through the systematic organization of all related clerical routines, of a co-ordinated and continuous flow of the essential information needed for both short- and long-term forecasting.

This very new field of development, however, is a subject in itself and must be regarded as outside the scope of the present series of articles.

Electricity for the Mining Industry

AT the request of the Economic and Social Council, the Secretary-General of the United Nations prepared a report on the possible applications of atomic energy, especially in the field of power, industry and agriculture. The report, entitled, " Economic Applications of Atomic Energy ", is available from the sales agents for United Nations Publications (3s. 6d. Stg.).

Mining is the most electricity-intensive sector of an economy, especially underground mining. Present trends indicate that the electricity requirements for ore mining and metal refining will continue to increase in view of the growing list of minerals required by modern industry and of the greatly increasing quantities of minerals called for by industrial expansion throughout the world. Average mine consumption of electricity is between 10 and 45 kWh. per ton of ore and as high as 80 kWh. in certain cases.

Some typical examples of mining requirements are given in the following table, which is reproduced from the report :

Mineral	*Kilowatt-hours required per metric ton of output*	*Country*
Coal	65	Japan
Coal	36	Western Germany
Copper:		
Mining	2 to 6	United States
Milling	6 to 17	United States
Gold	22 to 33	United States
Gypsum	160 to 180	Western Germany
Iron ore:		
Open cast	1 to 10	Western Germany
Underground	11 to 20	Western Germany
Potash	2,000	Western Germany
Salt	6 to 15	Western Germany
Sulphur	11	United States
Taconite (concentrated)	99	United States

Among the factors making for an increasing electricity demand in mining is the well-known tendency to exploit the higher grade ores first and to turn to lower grades of ore thereafter. The lower grades require more ore per ton of refined mineral and consequently call for greater electricity consumption per ton of product, even if production and technology are unchanged.

Dressing, Refining and Smelting

The dressing, refining and smelting of ores call for even larger quantities of electricity than are consumed in extraction. Most refining and smelting processes require an electricity consumption amounting to thousands of kW. per ton of product, as can be seen from the table below.

Product	*Kilowatt-hours required per metric ton of output*	*Country*
Alumina ex-bauxite	198	United States
Aluminium	19,840	United States
Aluminium	20,300	Japan
Copper, electrolytic	2,645	United States
Graphite	3,750	United States
Manganese, electrolytic	11,240	United States
Magnesium, electrolytic	17,640	United States
Nickel	2,645	United States
Tin refining	190	United States
Titanium metal	44,090	United States
Zinc, electric furnace	4,246	Japan
Zinc, electrolytic	3,750	United States

The availability of electricity at low cost is, therefore, still the determining factor in many cases for the location of smelters and refineries.

Very few data are available on the share of electricity cost in total mining cost (before concentration and refining). It is estimated that in well mechanized mines the electricity share in total mining cost is between 8 and 20 p.c.

In developed countries electricity is usually available at a fairly low cost from existing distribution networks. In under-developed areas, however, inadequate supply or high cost of electricity is one of the most serious handicaps in mining development. This and the corresponding lack of mechanization in many mines often lead to the closing down of mines long before the mineral resources have been exhausted. Mining experts estimate that at present prices the lifespan of many mines in under-developed countries could be greatly lengthened if electricity costs were cut by one-half, and that, with lower electricity costs, it would be profitable to reopen many of the mines now closed.

Sources of Power

Because nuclear power plants are independent of bulk transport facilities, it has frequently been suggested that atomic energy might solve the problem of power supply in remote areas where conventional sources of power would be very costly. There are potentially useful mineral resources in some remote areas of the world which need, among other things, power for their development. Whether or not nuclear power will bring such areas within the reach of economic development depends upon many factors, among them the possibility of producing nuclear power at moderate cost in relatively small-capacity plants.

The huge hydroelectrical undertakings under construction or projected in various countries are obviously of key importance to the development of mining, smelting and metal refining industries. Very considerable hydroelectric potential exists in a number of countries possessing large but undeveloped energy resources. If the immediate market for power should be far distant from the hydro site, however, the cost of transmission lines must be added to the cost of the hydro plant. Since long distance transmission lines are costly, they are not likely to be economic unless the market for electricity is large.

Nuclear power is not likely to be able to compete in the near future with hydro power where the latter can be produced under favourable conditions. Whether or not it is likely to be competitive with thermal power under conditions of high load factor will depend largely on the relative fuel costs per kWh. In many mining districts, however, the most favourable location for a thermal plant may be such as to involve some transmission costs, so that the competitiveness of a nuclear as against a conventional plant would then depend on the relation between the generating cost per kWh. of a nuclear plant and the generating plus transmission costs per kWh. of a conventional plant.

As the report points out, the expectation that costs of power from nuclear sources will fall in the near future because of improvements in technology should not obscure the fact that technological improvements tending to reduce costs are also taking place in conventional power equipment.

While an increasing use of nuclear power may be expected in the near future, it seems improbable that it will ever completely supersede either hydro or conventional power. Rather it will add to the variety of means of supplying the growing demand for electrical mine power.

Machinery and Equipment

A French Drill For British Oil

The first turbo-drill to be used in England is being tested by the BP Exploration Co. at their Egmanton oilfield in Nottinghamshire. The drill, which is of French manufacture, is being used to drill production wells to a depth of about 3,000 ft.

The turbo-drill is a 30 ft. cylinder which is attached at the end of the ordinary drilling pipe. Mud pumped at pressure down the drilling pipe turns blades within the cylinder and these provide power to rotate the drilling bit. The main claim made by the manufacturers is that, as the pipe does not rotate as in conventional drilling, no power is lost and drilling progress is faster, although the same bits are used in both methods.

Turbo-drills have been used successfully in other countries. When the tests at Egmanton are completed, the results will be evaluated to determine if the turbo-drill can be used to advantage in B.P.'s drilling operations.

The Labgear Prospecting Ratemeter D4025/A

NEW TRACTOR SHOVELS

W. E. Bray and Co., Ltd., announce that the Model BL450T shown on their stand at the recent Building Exhibition was one of three new models, all of which are four-wheel-drive tractor shovels, with equal size tyres. These machines are designed to operate in arduous conditions as tractors as well as shovels.

While the new machines use the same main-frame, axles and hydraulic system, each is designed and built as an individual unit with its own characteristics. With rear-wheel steer, these new tractor shovels are manoeuvrable: a turning radius of under 20 ft. to the bucket end has been achieved for all of them.

The BL440, powered by a Ford four-cylinder diesel engine, has a lifting capacity of 2,800 lb., whilst the BL450 and BL450T are both powered by a Perkins 62-b.h.p. diesel engine and have a lifting capacity of 3,100 lb. The BL440 and BL450 machines have a standard type of transmission giving six forward and two reverse gears and a speed range of 2 to 13 m.p.h. A 13 in. Borg and Beck clutch is fitted as standard in both these models. The BL450T uses a Brockhouse converter which incorporates a hydraulically operated epicyclic gear giving two forward and one reverse speed.

A PROSPECTING RATEMETER

The prospecting ratemeter D4025A manufactured by Labgear, Ltd., replaces the earlier 1048A model produced by the company. The new ratemeter is robust, completely self-contained, sealed against moisture, and being transistorized, has extremely long battery life.

The canvas carrying bag enables the unit to be shoulder-slung or worn on the chest. The fitting of a loudspeaker in place of the troublesome headset should be universally welcomed.

Reports of satisfactory results have been received from India, Australia, and South Africa. Recently one of these instruments was supplied to the British survey team in the Antarctic for use at temperatures of 50 deg. C. and below.

ELECTRICALLY-DRIVEN COMPRESSORS

For many applications the installation of diesel units leads to a measure of objection due to the noise level created. A substantial reduction of noise level has already been achieved by the Consolidated Pneumatic Tool Co. in their oil-flooded Power Vane rotary compressors, and this has been followed by the introduction of electric motors for the complete range. Further advantages accruing from this type of compression lie in the great economy of operation, the maintenance costs of electric motors being negligible when compared with those of diesels.

The Consolidated Pneumatic electrically operated Power Vane rotary compressor consists basically of two elliptically shaped chambers mounted in line with an electric motor. Two rotors, mounted on a common shaft, are positioned eccentrically to the casing of the chambers and carry a number of sliding vanes, inserted radially in longitudinal slots in the rotor. Thus as the shaft rotates, the vanes form a number of sectors of increasing and then diminishing size as they follow the changing contour of the chamber.

Air is admitted through an inlet port when the vanes are approaching maximum extension, and oil flooding of the compressor achieves thorough lubrication, cooling and sealing of clearances.

The new electrically operated units, for surface use, are powered by Brush and English Electric direct coupled, high torque, squirrel cage motors fitted with Star Delta starters. Where flameproof operation is required, the units may be

The Bray Model BL450T tractor shovel

supplied with Brush, English Electric, Metropolitan Vickers, and Morley flameproof motors.

The units are run at lower r.p.m. than when diesel powered. Thus the models 120RE, 175RE and 210RE are designed for service at 1,450 r.p.m. and deliver 100, 135 and 160 c.f.m. F.A.D. respectively, while the 365RE operates at 1,460 r.p.m. and delivers 300 c.f.m. F.A.D., pressures in each case being 100 p.s.i. The largest unit in the range, the 600RE, delivers 510 c.f.m. F.A.D. at 1,480 r.p.m.

A NEW DUPLICATOR

The new electric stand model Azograph duplicator, Model 225, manufactured by A. B. Dick Co. (of Great Britain), Ltd., is suitable for production systems as well as general copy work. Because it has alternative single-cycle operation, copy can be adjusted to register on pre-printed forms. It also can be blocked out by masking.

In all industries, not the least in mining, document copies are needed for costing, materials release, quantity control, analysis, parts order, product authorization, consignment accounts, statistics, sales and other functions. The Model 225 will produce such copies and, when required, specialized copies.

The Model 225 is operated by a foot pedal, so that the operator can cope with a long run of jobs comfortably seated. It will take copy up to 11¼ in. by 14 in. Speed is 100 copies a minute.

BONDED BRAKE LININGS

Exhibited on the stand of Small and Parkes, Ltd., at the recent Engineering Marine and Welding Exhibition was a pair of the largest bonded brake shoe backing plates at present in use in this country. Each is 12 ft. long (developed length) by 9 in. wide by 1 in. in thickness, fitted with Don woven friction material bonded to the metal. The backing plates are spares for a colliery winding engine (in the North-eastern Division of the National Coal Board) which has recently been fitted with Black's high-pressure oil-controlled spring braking and safety system.

The brakes into which these linings fit are of patented construction with shoes which (although operating from a single anchor pivot) present the linings to the brake path so that radial movement and unit pressure applied to the two extreme ends of the lining are exactly similar. Consequently, wear distribution is even from either end of the lining. By this special construction the lining is constrained to move and to wear correctly, and full use can be made, therefore, of a banded lining. A lining 1 in. thick can now be worn down to something less than $\frac{1}{16}$ in. Similar linings held by conventional brass screws will only wear down to $\frac{1}{8}$ in. thickness before requiring change.

These brakes are applied by springs in compression and they are taken off or controlled to intermediate braking force by high-pressure oil operating between 0 and 4,000 p.s.i. By the application of suitable tie rods and bellcrank levers between the posts, a closed circuit of applied forces is formed within the shoe assembly, in such a way that the only force coming from outside the system is that from the torque reaction of the brake itself. Nearly fifty winders are now fitted with this type of brake.

Technical Briefs

Levitation Melting of New Metals

The newer metals are now being investigated by heating them thousands of degrees above white heat, while they float, freely suspended in space.

Called levitation melting, this unique and versatile technique was invented by Westinghouse research scientists. It was brought to its present state of development by scientists at the Westinghouse Research Laboratories and the University of British Columbia.

At the Westinghouse Research Laboratories levitation melting is used to prepare highly purified laboratory-scale ingots of niobium, zirconium, titanium, molybdenum and dozens of other metals and alloys. Because they melt at very high temperatures, and are extremely active chemically at such temperatures, these metals and alloys are difficult to prepare with equal purity by any conventional method.

Westinghouse scientists suggest that columbium may soon become an outstanding high-temperature, high-strength structual metal. Levitation melting is one of the few methods known for the preparation of niobium and niobium-base alloys in the purity required for fundamental research on the metal.

In levitation melting, compressed metal powder is placed inside a copper coil which carries a high frequency current. Reversing its direction nearly 1,000,000 times a second, the electric current generates a field of force which floats the metal charge inside the coil. At the same time, it converts the metal into a white-hot molten mass in a matter of seconds. Temperatures up to 5,000 deg. F. are achieved in half a minute or less.

At white heat, metals such as columbium and titanium are among the most active chemicals known. They react chemically with any known vessel in which they are melted. The traces of impurities they pick up cannot be tolerated in research on the pure metal.

Levitation melting eliminates this problem since no containing vessel is required, the molten metal floats freely in space, confined only within itself. The process is carried out inside a sealed vessel containing an inert gas such as helium or argon.

JOINING COPPER TO ALUMINIUM

Intertectics, Inc., United States, has announced the development of a joining material and new industrial technique for the chemical union of similar and dissimilar non-ferrous metals. Use of this new material, called InterAct, is expected by changes in methods of joining non-ferrous metals in the aircraft, automotive, appliance, construction and electrical manufacturing industries, missile fabrication and many other types of industry.

The product makes commercially feasible, for the first time, the chemical joining of copper and aluminium, until now possible only by mechanical means. The new material also forms a permanent chemical bond through ion exchange between such materials as magnesium, titanium, brass, zinc, silver and gold.

The resulting joint is said to be usually stronger than either of the metals involved, is frequently greater in corrosion resistance, and has similar electrical, physical and chemical properties.

Joints resulting from use of these materials represent a totally new concept in the union of metals. They cannot be classified as soldering, welding or brazing operations, according to the company.

On some types of joints, it is estimated that industry may save from 50 to 300 per cent of its present joining costs through the use of InterAct.

Chemically, InterAct is a reaction eutectic, that is, a material which under the influence of heat eliminates the surface oxide layer and causes similar and dissimilar metals to flow together at temperatures lower than the melting point of either metal being used.

The material is now available in production quantities in three forms. InterAct-S, composed of the chlorides of zinc, lithium, potassium and sodium, encased in an extremely pure alloy of zinc and aluminium, InterAct-E, similar in formula to InterAct-S and InterAct-G, a totally different formula, composed of aluminium trichloride, zinc chloride and sodium chloride.

METAL RECTIFIERS FOR INDUSTRY

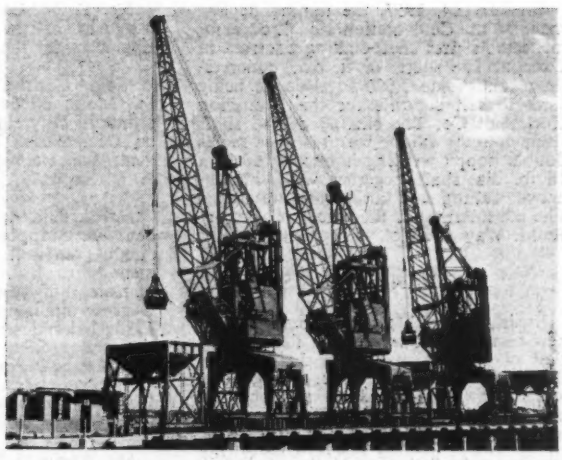
While alternating current is satisfactory for most arc welding, certain kinds of work, or work on some metals, is either easier or more effective when d.c. is used. In a number of applications it is, of course, essential. Examples are the welding of aluminium, copper, nickel and their alloys, corrosion resisting steels and mild steel in lighter gauges.

Traditionally, d.c. for welding is supplied by a motor generator; that is, an a.c. motor taking power from the mains and driving a d.c. motor. These have proved reliable enough, but the advantages of the metal rectifier are such that it is rapidly replacing the motor generator in a wide range of industries.

Pioneered in the United Kingdom by Quasi-Ac Ltd., the metal rectifier is already giving a more efficient welding service in the manufacture of varied plant and equipment.

The main advantages of the metal rectifier stem from the absence of any continuously moving parts, except the cooling fan. This means that maintenance is reduced to a minimum; the machine is silent in operation. Assuming an operating factor of 33⅓ per cent (that is, the welding load is taken for one-third of the time the machine is in use), then a power saving of over 40 per cent is claimed. The minimum current is lower than that normally avaliable on rotary plant so that the smallest and largest electrodes may be used with equal facility.

MINING MISCELLANY



The widening applications of aluminium are revealed in this picture of 116-ft. aluminium alloy crane jibs designed and manufactured by Head Wrightson Aluminium Ltd.

Iraq is to exploit mineral resources under the sea bed of its territorial waters in the Persian Gulf.

★

Poland plans to raise coal exports to West Germany from the present 500,000 tons a year to 2,000,000 tons a year. Trade talks in Warsaw have resulted in agreement in principle.

★

At Djezkazgansk, in the centre of a new copper-mining area in Kazakhstan, the biggest in the U.S.S.R., a copper smelting and refining complex claimed to be the largest in the world is now being built.

★

The Geological Survey Department of the British Borneo Territories reports that boulders of solid chromite have been found near Paranchangan.

★

Norsk Hydro are considering the erection of an electric plant for making coke out of Spitzbergen coal. The coke will be tried out at the Norwegian State steel works and the private steel works, Christiana Spigeverk.

★

On September 8 this year, the Bleikvassli mines at Mo-i-Rana were opened. This is stated to be the largest venture in Norway for the production of lead and zinc concentrates. The output has already been sold abroad on long-term contracts.

★

In Finland, the State mining company of Outokumpu Oy. has decided to commence mining operations at Kotalahti in the parish of Leppavirta, near Kuopio. Full-scale operations are expected to start in the autumn of 1959 and annual production is estimated at 2,000 tons of nickel and 1,000 tons of copper and other metals.

★

Quebec Lithium Corp. has signed a purchase agreement for a site at Rouses Point, on the Canadian border, where it will build a $3,000,000 refinery. The plant will refine ore from the company's mine in north-western Quebec.

★

Discussions are expected to take place shortly between Brazil and the United Kingdom with a view to reaching an agreement on atomic energy, based on the exchange of British know-how for the right to supplies of thorium from Brazil, which has one of the world's largest reserves of monazite.

★

The Pittsburgh Steamship division of the U.S. Steel Corporation has long-range plans for building twelve large new iron ore carriers for the Great Lakes trade. The programme would probably involve an outlay of around $100,000,000.

★

At the end of July this year, accumulated stocks of sulphur in Italy had been reduced to 197,000 tonnes compared with 307,565 tonnes at the end of July, 1956. During the twelve months from July, 1956, 180,163 tons of sulphur were added to the stock and 290,678 tons sold. There has been some concern in the Italian sulphur industry at a proposal by the Italian Government to import 35,000 tons of American crude sulphur.

★

In the Debiensky colliery, Katowice voivodship, Poland, assembly work has been completed on hydromechanical installations for the vertical transport of coal to the surface. Water under a pressure of seventy atmospheres will convey coal from a depth of 300 metres. The capacity of the new installations is expected to reach 100 tons of coal per hr.

★

During the first part of 1957 progress was made in the exploitation of barytes claims in the Pinar del Kio Province of Cuba, which are held chiefly by the Mora Mining Co. and the West Indies Iron and Metals Co. A decree dated February 11, 1957, granted a port concession at Santa Lucia to the Mora Mining Co. for handling of barytes shipments. Before it was granted, only small quantities of barytes were mined on the island owing to high transportation costs. The Mora Co. is drilling to determine the size of its deposits, which are estimated at 500,000 l.tons.

★

A cleaning plant in the Donbas is using for the first time new equipment designed by a Soviet engineer, Dmitry Toporkov, to separate rock from fine coking coals. Previously rock could be separated only from particles of coal with a dia. of at least ¼ in. It is claimed that Toporkov's machine makes it possible to separate all particles of coal down to 1/50 in. This prevents the loss of high-grade fuel and greatly reduces operating costs. It has been estimated that the new method of cleaning coal will save more than 5,000,000 tons of coking coal a year at collieries in the Stalino economic area alone.

★

United States engineers have estimated the cost of rehabilitating the Townsville-Mount Isa Railway at £A29,000,000. This includes large-scale work on the existing line, new bridges and new locomotives and rolling stock. The scheme is proposed to meet the increasing needs of the Mount Isa Mines and the Mary Kathleen uranium field. An immediate start is recommended to allow the line to carry heavy traffic by 1961. State and Federal experts are investigating the report.

★

The U.S.S.R.'s first gas turbine underground gasification station has been built near Moscow. The fuel resources on which it operates are located at a depth of some 130 ft., the gasification process being directed from the surface. More than 1,404,000 cu. ft. of gas are produced per hour. The area's established coal resources amount to 50,000,000 tons, which is enough to drive the station for seventy years. The capacity of the gas turbine generating set is 20,000 kW.

★

Negotiations are proceeding in Dublin for the conclusion of an agreement between the Silvermines Lead and Zinc Co., Ltd., of Shallee, County Tipperary, and the Cyprus Mines Corporation of the United States. Under the agreement the latter concern would spend a "substantial sum of money" over a three-year period, during which it would carry out detailed exploration over an area of 30 sq. miles of the Irish company's property at Menagh, County Tipperary, where Silvermines is at present mining for lead and barytes.

★

Soviet geologists have made their first find in the Ukraine of bauxite deposits, states the Tass News Agency. The deposits are located near the village of Shesternia, in the Dnepropetrovsk region. They lie at a depth of 60 to 70 metres, and are reported to stretch for about 20 kilometres. According to Tass, the deposits are sufficient to cover the needs of the Zaporzhye aluminium plant for forty years. The first pilot shaft will be sunk next year.

★

Head Wrightson Aluminium, Ltd., a subsidiary of Head Wrightson and Co., Ltd., recently supplied to Wm. Cory and Son, Ltd., three 116 ft. aluminium alloy crane jibs. Designed and manufactured at the company's works at Stockton-on-Tees, the jibs have been fitted to eight-ton level luffing grabbing cranes for discharging coal into coastwise colliers from ocean-going ships. They have been designed to lift a nominal load of eight tons at all radii between 23 ft. 6 in. (min.) and 96 ft. 3 in. (max.), hoisting this tonnage at 300 ft. per min., slewing at 1¼ r.p.m., and luffing at 150 ft. per min.

On July 24, 1957, the mining department of the Cementation Co., Ltd., commenced its first shaft-sinking contract in Canada. The shaft, 16 ft. dia., concrete-lined, and some 2,000 ft. deep, is being sunk to salt deposits for the Dominion Rock Salt Co. The sinking of the shaft itself presents unique features in so far as double hoppit winding is introduced in a 16 in. dia. shaft, together with simultaneous walling and mechanical mucking. The consultants for the whole project are R. M. Way and Co., of Toronto.

COMPANY EVENTS

British Ropes, Ltd., have commenced a new service to rope users in the Federation of Malaya, based on their marine depot at Keppel Harbour, Singapore, which was opened earlier this year. It provides on-the-spot facilities for splicing, terminal fitting, and the make-up of slings. Stocks include special tropicalized steel-wire ropes, based on research by British Ropes. Paterson, Simons and Co., Ltd., remain responsible for sales of the products of British Ropes, Ltd., in the Federation.

★

A subsidiary company has been formed in the United States by Megator Pumps and Compressors, Ltd. (43 Berkeley Square, London, W.1), to handle their American business. The new company, known as Megator Pumps and Compressors, Inc., will be responsible for marketing Megator pump sets—produced in the United Kingdom by the parent company to American standards—throughout the United States, and will provide efficient after-sales service when required. Its address is 930 Manchester Avenue, Pittsburgh 12, Pa. Pittsburgh is the biggest centre of the coal-mining and steel industries, in both of which the special characteristics of the Megator sliding-shoe pump are particularly applicable.

★

The registered office of Ipoh Tin Dredging, Ltd., Sungei Kinta Tin Dredging, Ltd., and Temoh Tin Dredging, Ltd., has been changed to 65 London Wall, London, E.C.2 (telephone National 4618).

PERSONAL

A large congregation attended the memorial service for Sir Ernest Oppenheimer on Tuesday at St. Martin-in-the-Fields, London. Among those present present were the Ambassador of the Union of South Africa in Paris, the High Commissioner for Rhodesia, the Governor of the Bank of England, and many directors of the companies with which Sir Ernest was associated.

★

Mr. Harry F. Oppenheimer has been appointed chairman of De Beers Industrial Corporation, Ltd., in succession to his late father, Sir Ernest Oppenheimer. He has also been elected to the board of the British South Africa Co.

★

Mr. T. H. Bradford has been appointed to the boards of Rhodesian Selection Trust, Ltd., Roan Antelope Copper Mines, Ltd., and Mufulira Copper Mines, Ltd. Mr. R. H. W. Bruce has resigned from the board of Chibuluma Mines, Ltd., and Mr. H. H. Taylor has been appointed to fill the vacancy. Mr. C. P. Nichols has resigned from the board of Chambishi Mines, Ltd., and Mr. D. A. Etheredge, managing director of Selection Trust, Ltd., London, has been appointed to fill the vacancy.

Mr. H. A. Longden has been elected president of the Institution of Mining Engineers for the year 1958-59.

★

Major Cuthbert Johnson, manager of the Mond Nickel Co.'s precious metals refinery, will relinquish his appointment on December 31, having reached retirement age. He will be succeeded by Mr. A. R. Raper.

★

Mr. L. P. Kent and Mr. M. G. Deacon has been appointed directors of the Anglo-Transvaal Consolidated Investment Co., Ltd. Mr. Kent is general manager of the company and Mr. Deacon managing director of Anglo-Transvaal Industries, Ltd.

★

Mr. G. G. Potier has been appointed a director of the Consolidated Gold Fields of South Africa, Ltd., and of New Consolidated Gold Fields, Ltd.

★

Mr. Reginald W. Grout has been appointed to the boards of Witbank Colliery, Ltd., and of the Transvaal Consolidated Land and Exploration Co., Ltd. He succeeds Mr. Arthur E. Edge, who has resigned.

★

Mr. James Austen Griffiths has been appointed a director of Western Selection and Development Co., Ltd. Major-General W. W. Richards has appointed Mr. Guy Houghton Brown as his alternate director.

★

Mr. K. L. Stretch has been appointed director of the National Coal Board's Central Engineering Establishment at Bretby, South Derbyshire. He has been deputy director of the Establishment and has been acting director since the death of Mr. L. H. Daniel in September.

★

Dr. W. D. Scott has been appointed assistant managing director of B.T.R. Industries, Ltd.

★

Dr. K. L. Sutherland, an assistant chief of the C.S.I.R.O. Division of Industrial Chemistry and leader of its Physical Chemistry Section, has been awarded the H. G. Smith Memorial Medal. The announcement appears in the December 9 issue of the Royal Australian Chemical Institute. Dr. Sutherland graduated at the University of Melbourne. He received his Master of Science degree in 1941 as a result of research on the froth flotation of minerals.

★

Mr. N. C. Lake has been appointed a director and deputy managing director of Head Wrightson and Co., Ltd. He will be responsible for co-ordination of the group sales to the iron and steel industry. Mr. Douglas Dodds-Parker, M.P., has joined the board of the Head Wrightson Export Co., Ltd. Mr. Anthony Neville has been appointed as manager (Europe) of the Head Wrightson Export Co., Ltd.

★

Among the awards announced by the Institution of Mining Engineers for 1956-57 is that of the Sam Mavor Students' Prize of £20 to Mr. R. Driver for his paper entitled "Planning and Organization of High-Speed Tunnelling" (*Trans. Instn. Min. Engrs.*, 1956-57, 116, 481).

★

Mr. J. F. Perry has retired from the board of Metropolitan-Vickers Electrical Export Co., Ltd., of which he was managing director, and from the board of the parent company, Metropolitan-Vickers Electrical Co., Ltd. Consequent on Mr. Perry's retirement, Mr. F. R. Mason was appointed managing director of Metropolitan-Vickers Electrical Export Co., Ltd., on October 1, 1957, and Mr. H. F. Bibby succeeded Mr. Mason as the export company's general manager. Concurrently, Mr. Mason was appointed to the boards of Metropolitan-Vickers Electrical Co., Ltd., and Associated Electrical Industries Overseas, Ltd.

CONTRACTS AND TENDERS

Formosa

TEN/29796. An International Co-operation Administration (I.C.A.) procurement for Formosa calls for centrifugal multi-stage water pumps for use underground in a coal mine, discharging not less than 200 g.p.m. against a total head of 400 ft. and direct driven by electric motor. Project, Implementation Order No. 84-21-007-9-70249 (Invitation No. US-237C-2). Issuing authority, Central Trust of China, Purchasing Department, 68 Yen Ping Nan Road, Taipei, Taiwan (Formosa). Closing date, 10/1/58. B.O.T. Ref. ESB/29996/57/ICA. Telephone inquiries to Chancery 4411, extension 354.

South-West Africa

TEN/29855. Primary jaw crusher with power unit, feed opening approx. 24 in. by 14 in., driven by diesel engine. Bids to the Secretary, South-West Africa Tender Board, P.O. Box 164, Windhoek (Tender No. 1594/57). Closing date, 17/1/58. B.O.T. Ref. ESB/30317/57. Telephone inquiries to Chancery 4411, extension 738 or 771.

Obituary

DR. JOSEPH AUSTEN BANCROFT

The death has occurred in Johannesburg of Dr. Joseph Austen Bancroft, the distinguished geologist, whose name has been given to the Copperbelt's youngest producing mine. Born in 1882 at North Sydney, Cape Breton Island, Nova Scotia, Dr. Bancroft was educated in Canada and studied at Acadia, Yale, Leipzig, and Bonn Universities. He was a B.A. of Acadia University, and a B.A. and A.M. of Yale. In 1910, while Lecturer in Geology at McGill, he was awarded his Ph.D. In 1949 he was awarded an Hon. D.Sc. of Acadia.

From 1913 to 1928, Dr. Bancroft was Dawson Professor of Geology at McGill. While occupying this chair, he undertook the investigation of numerous mineral deposits in Canada and the United States. He was assistant general manager to Granby Consolidated from 1921-22, and consulting geologist of Consolidated Mining and Smelting Co. of Canada from 1925-26.

In February, 1927, he was asked by Anglo American Corporation to take charge of prospecting in Northern Rhodesia and took over the post in 1929. From 1929-36 he was consulting geologist in Northern Rhodesia for Anglo American Corporation.

In 1936, the late Sir Ernest Oppenheimer asked Dr. Bancroft to reorganize the drilling in the Western Reefs area, which up to then had failed to yield results. From 1936-52, Dr. Bancroft was consulting Geologist for Anglo American Corporation in Johannesburg. In 1952, he retired, but was retained in a consultative capacity by Anglo American Corporation. He was author of numerous reports and papers on geology.

Metals and Minerals

Tungsten's Unhappy Year

In a year in which producers of most ores and metals have had to contend with sluggish demand and falling prices, the tungsten industry has been among the greatest sufferers. On December 17, wolfram ore was quoted in London at 102s. to 103s. per l.ton unit c.i.f. Europe for minimum 65 per cent material, which compares with 220s. to 225s. at the end of 1956 and 272s. to 276s. in January of last year. In New York, foreign tungsten ore is currently quoted at $12.75 to $13.25 per s.ton unit c.i.f.

With buying interest at its present low level, no great weight of offers is required to keep prices slipping further. Despite the reluctance of sellers to cut their quotations, their collective resistance is being progressively sapped by the continuing decline. It is evident that the slide in prices must have severely affected the profits of even the lowest-cost producers, while many mines which flourished during the years of prosperity have already fallen by the wayside. It remains to be seen how many more producers will be compelled to suspend operations before a substantial improvement in the market comes about.

Spanish wolfram ore exports have been exempted from taxes in view of the low world market prices and the increasing difficulties encountered by exporters in maintaining their position on foreign markets. So far no similar action has been taken by Portugal. Such measures may mitigate the hardships of mine owners, but they cannot greatly assist them while market conditions continue on their present basis.

Unfortunately, the prospects for an immediate upswing in demand cannot be regarded as encouraging. The steel industry accounts for 90 per cent of wolfram production. While European steel production remains at a high level, the steel industry in the United States is now operating at about 70 per cent of capacity and a reduction in output is predicted for the early months of 1958.

A few weeks ago it was announced that the refusal of the United States Congress to appropriate additional money to continue the goverment purchasing programme for stockpiling tungsten had received confirmation in a report from the Attorney on the Defence Production Act. The report substantiated charges that the United States supply of tungsten was sufficient to cover five years of war-time needs. The tungsten purchasing programme, which was put into effect in 1950, increased domestic production within two years by 50 per cent, while at the same time imports of tungsten quadrupled. In gross transactions consummated, valued at $373,000,000, the tungsten expansion programme is the seventh largest of all those under the D.P.A. The United States Government is still buying some tungsten for the stockpile under long-term contracts entered into with foreign governments in 1950-52. It seems quite evident, however, that tungsten ore producers, whether inside or outside the United States, can look forward to no further market support from this source.

At the end of July, 1957, stocks at United States producers' plants amounted to 1,829 s.tons, compared with 1,285 s.tons at the end of 1956. The probable trend in recent months is indicated by an announcement that Climax Molybdenum had continued to retain its production of tungsten concentrates pending stabilization of depressed conditions in the market, occasioned by the United States Government's failure to make appropriations for the purchase programme it adopted. The company added that no sales had been made since the Government purchase programme was terminated in 1956.

Once the present period of adversity is over, tungsten producers can, of course, look forward to a period of rising demand as the expansion of steel production resumes its upward march. In fact, bearing in mind that once a mine has suspended operations, production cannot be turned on again like a tap, it may well be that in the not distant future the world may be crying out for more tungsten than producers can supply.

NICKEL PREMIUM DWINDLING

The premium free nickel market is now well on the way out. Earlier this year, prices of well over £2,000 per ton were indicated. Today, Canadian metal is reported to be available at $1.25 per lb. c.i.f., equivalent to £1,000 per ton and Continental metal at £900 per ton. Buyers are not easily found at these levels, however, and it is reported that lower prices would have to be accepted in order to assure business. So far as the United Kingdom is concerned, few buyers are now prepared to pay much over the contract price of £600 per ton for the pure metal. Scrap nickel prices in the United Kingdom recently dipped below the pure metal contract price of £600 for the first time for several years and are now indicated at from £550 to £600 per ton.

The Japanese pure nickel price is slow to follow the downward trend. Dealers report that Japan is still offering at $1.60 per lb. c.i.f., equivalent to £1,280 per ton. Japan is apparently unwilling to meet present competition and there has been some talk of production in that country being reduced.

PLANNING THE INGA PROJECT

The Lower Congo Development and Planning Institute has been invested with responsibility for the detailed planning of the Inga power project in the Belgian Congo. It is understood that the price estimates of power to be generated at Inga are being revised downwards. In stage one, when the installed capacity will be 1,600,000 kW., the previous estimate of 2.4 mills per kWh., may be nearer 2 mills. It is also hoped that the final price, when the ultimate capacity of 25,000,000 kW. is achieved, will be closer to 1 mill than the 1.2 mills previously estimated. A mill equals one-tenth of a United States cent.

The Belgian authorities are confident that all the stage one power which will become available from Inga in 1964 can be sold, even should the French proceed with the project for developing the very large potential of the rival Kouilou project. This view is subject to implementation of the plans now being studied by aluminium producers for the production of 300,000 tonnes of metal annually from imported bauxite or alumina, which would take 750,000 kW. of installed capacity.

★

Speaking at the forty-sixth annual meeting of the Investment Bankers Association at Hollywood Beach, Florida, Mr. Richard S. Reynolds, Jr., president of Reynolds Metals, predicted that, "For the first time in the history of non-ferrous metals," aluminium would develop from a job order business to a mass-production industry. He said that mass-production techniques were already indicated in the molten metal contracts which had been signed with leading motor-car manufacturers, under which metal is delivered in molten form directly to casting plants in the factories on an around-the-clock basis.

Among indications of break-throughs to mass production, Mr. Reynolds instanced the assembly-line production of aluminium foil, the expanding use of aluminium in the residential field, production of aluminium cans for an oil company and a food company, the use of aluminium pipe in oil production and farm irrigation, and aluminium's progress in appliances and electrical goods.

★

The As Ardal og Sundal Verk, of Norway, is to expand its aluminium output capacity to 150,000 tonnes by 1965. Its Ardal plant at present has a capacity of 28,000 tons of aluminium annually and current plans provide for an expansion to 64,000 tons. New investment plans will raise this figure by a further 34,000 tons.

★

It has been announced by the Aluminum Co. of Canada, Ltd., that temporary repairs have been made to the company's electrical power transmission line at Kitimat, B.C., and that power is now flowing into the town. As previously reported, service to the town and to the company's aluminium smelter had been disrupted by a rockslide. The temporary power circuit will shortly be reinforced and production of aluminium resumed. Loss of production will be small. The statement adds that supplies of aluminium on hand and from the company's four other smelters are adequate to meet market requirements. The company carries isurance on the transmission line and on the smelter operations.

★

Kaiser Aluminium and Chemical Corp. has obtained a bauxite exploration and mining concession from the Government of Panama. The contract gives the company exclusive exploration and mining rights in a large area of western Panama near the Costa Rican border. Preliminary studies indicate that deposits

are extensive and that Panama might become a major source of bauxite.

★

A method developed by the Bureau of Mines, United States Department of the Interior, will soon be used commercially to beneficiate bauxite from the Quapaw deposit, Saline County, Arkansas, and make it suitable for aluminium production. The bauxite ore tested by the Bureau contained 2 to 3 per cent iron oxide. Treatment by the Bureau's process reduced the iron-oxide content to less than 2 per cent.

A copy of the publication, *Report of Investigations*, 5366, "Laboratory Investigation of Bauxite Ore from the Quapaw Deposit, Saline County, Ark.", can be obtained by writing to the Publications Distribution Section, Bureau of Mines, 4800 Forbes Street, Pittsburgh 13, Pennsylvania.

COPPER · TIN · LEAD · ZINC

(From Our London Metal Exchange Correspondent)

The general tone of markets remains very undecided in face of continued weakness on Wall Street and more prophecies about the state of the American economy next year, although prices themselves have shown reasonable rises from the low levels established at the end of last week.

COPPER PRODUCTION CUTS

The copper market has been the most volatile, with a jump of some £10 per ton on Monday following the announcement that Kennecott were cutting back production by about 3,800 tons per month, representing approximately 12 per cent of their U.S. production, but there was no follow-through from consumers and prices in Europe soon receded again although the official Belgian price was raised on Tuesday to the equivalent of 23.35 c. per lb. in America. The rise in the London price was used by the customs smelters as an excuse to raise their price to 25¼ c. per lb. but it is understood that if anything, business is worse at the new level and it would not be surprising if the quotation has to be lowered again in the near future although some attempt may be made to maintain it until the turn of the year.

The Kennecott cutback, combined with those announced earlier by Phelps Dodge and Anaconda, means a cutback of some 12,000 tons a month, to which can now be added Cerro de Pasco's announced cut in their Peruvian output, amounting to some 300/350 tons per month. All this, together with the R.S.T. cutback of 10 per cent and the reported reduction in output in the Belgian Congo, has gone more than half way to balance production and consumption. It is felt that if the Chileans can only be induced to introduce some form of curtailment, the overall picture should be pretty well balanced when taking into account the deliveries which new projects in the U.S. are making.

On the consumption side it is felt that this will continue to increase outside America, but unless there is a complete reversal of sentiment in the latter country, the decrease there will probably more than outweigh the increase elsewhere.

TIN STOCKS STILL RISING

The tin market has also had one spasm of upward movement, but as was generally anticipated this was short-lived and the Buffer Pool is once again having to support the cash quotation to absorb the continuous arrivals of tin from overseas. It is generally expected that this state of affairs will continue for some weeks, with the tendency for rises to become more frequent. At the beginning of the week stocks in warehouses increased by another 1,206 tons. As was forecast a contango has developed, but its size must be at least twice as great as that at present ruling before purchases of three months' metal can have any effect on the cash price.

What is almost a buyers' strike continues in the U.S. and it now seems unlikely that any demand will arise before the turn of the year; outside the States demand is also spasmodic but, in general, appears to be keeping up fairly well. On Thursday morning the Eastern price was equivalent to £733⅛ per ton c.i.f. Europe.

HIGHER LEAD/ZINC PRICES

Both the lead and zinc markets have shown higher prices, but it cannot be reported that the undertone has improved much and in fact it is not expected to until after the New Year's holidays. The latest figures for the two metals show a rather confused picture, but it would appear that cutbacks in zinc output, combined with the slowing down of shipments of concentrates and residues, are beginning to take effect, although recovery must be a long job and a cessation of monthly stockpile purchases must be envisaged to cause a temporary worsening of the situation again.

The lead figures are even more indecisive but the London market has been maintained by a certain amount of American demand since, for the time being, the L.M.E. is the cheapest source of lead in the world.

Closing prices are as follows:

	Dec. 12 *Buyers*	*Sellers*	Dec. 19 *Buyers*	*Sellers*
COPPER				
Cash	£177	£178	£180½	£180¾
Three months	£181¾	£182	£185	£185½
Settlement	£178		£180¾	
Week's turnover	8,750 tons		9,222 tons	
LEAD				
Current ½ month	£69	£69½	£73½	£73¾
Three months	£70½	£70¾	£73½	£73¾
Week's turnover	7,050 tons		4,450 tons	
TIN				
Cash	£730	£730½	£730	£730½
Three months	£730¾	£731	£730¾	£731
Settlement	£730½		£730½	
Week's turnover	1,965 tons		2,130 tons	
ZINC				
Current ½ month	£61	£61¼	£63	£63¼
Three months	£61	£61¼	£63¼	£63½
Week's turnover	6,250 tons		3,900 tons	

LONDON METAL AND ORE PRICES, DEC. 19, 1957

METAL PRICES

Aluminium, 99.5%, £197 per ton
Antimony—
English (99%) delivered, 10 cwt. and over £190 per ton
Crude (70%) £190 per ton
Ore (60%) basis 20s. 0d./21s. 0d. nom. per unit, c.i.f.

Arsenic, £400 per ton
Bismuth (min. 1 ton lots) 16s. lb. nom.
Cadmium 11s. 3d. lb.
Cerium (99% net), £13 18s. lb. delivered U.K.
Chromium, Cr. 99% 7s. 2d. lb.
Cobalt, 16s. lb.
Germanium, 99.99%, Ge. kilo lots 3s. 4d. per gram
Gold, 249s. 6½d.
Iridium, £27/29 oz. nom.
Lanthanum (98/99%) 15s. per gram.
Manganese Metal (96%-98%) £310
Magnesium, 2s. 5½d. lb.
Nickel, 99.5% (home trade) £600 per ton
Osmium, £20/22 oz. nom.
Osmiridium, nom.
Palladium, £7 10s./£8 0s. oz.
Platinum U.K. and Empire Refined £28/10 oz.
Imported £27 10s. 0d. nom.
Quicksilver, £69 0s. ex-warehouse
Rhodium, £42 oz.
Ruthenium, £16/£18 oz. nom.
Selenium, 53s. 6d. per lb.
Silver, 77⅛d. f. oz. spot and 76⅞d. f'd.
Tellurium, 15s. 16s. lb.

ORES AND OXIDES

Bismuth	30% 5s. 0d. lb. c.i.f. 20% 3s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semifriable) 48%	£17 5s. 0d. per ton c.i.f.*
" Hard Lumpy 45%	£18 0s. 0d. per ton c.i.f.*
" Refractory 40%	£12 5s. 0d. per ton c.i.f.*
" Smalls 44%	£1 5s. 0d. per ton c.i.f.*
Baluchistan 48%	£12 0s. 0d. per ton f.o.b.
Columbite, 65% combined oxides, high grade	nom.
	* *Effective Jan. 1, 1958*
Fluospar—	
Acid Grade, Flotated Material	£22 13s. 3d. per ton ex. works
Metallurgical (75/80% CaF_2)	156s. 0d. ex works
Lithium Ore—	
Petalite min. 3½% Li_2O	47s. 6d./52s. 6d. per unit f.o.b. Beira
Lepidolite min. 3½% Li_2O	47s. 6d./52s. 6d. per unit f.o.b. Beira
Amblygonite basis 7% Li_2O	£26 5s. per ton f.o.b. Beira
Magnesite, ground calcined	£28 0s./£30 0s. d/d
Magnesite Raw (ground)	£21 0s./£22 0s. d/d
Manganese Ore Indian—	
Europe (46%-48%) basis 77s. 6d. freight	nom.
Manganese Ore (43%-45%)	nom.
Manganese Ore (38%-40%)	nom. (including duty)
Molybdenite (85% basis)	8s. 5d. per lb. (f.o.b.)
Titanium Ore—	
Rutile 95/97% TiO_2 (prompt delivery)	£42/£44 per ton c.i.f. Aust'n.
Ilmenite 52/54% TiO_2	£11 10s. per ton c.i.f. Malayan
Wolfram and Scheelite (65%)	102s. 0d./107s. 0d. per unit c.i.f.
Vanadium—	
Fused oxide 90-95% V_2O_5	£10 per unit c.i.f.
Zircon Sand (Australian) (63-66% ZrO_2)	£16 per ton c.i.f.

Mining Finance

Too Much Platinum

It has been apparent for several months that platinum is in over-supply, as evidenced by the falling open market prices which have necessitated price reductions by the two leading refiners twice within the past six months. Even at the current price of £28 10s. per oz. (which compares with £34 per oz. in the first half of the year), platinum remains in excess supply. Sales by Rustenburg Platinum Mines—the world's largest producer of platinum metals—are currently running at only about 60 per cent of the level achieved during 1956-57. Because of the changed situation, the company postponed the commissioning of its new reduction plant, which was completed some months ago. Now comes an announcement that in order to avoid as far as possible over-production of the metal, "with its attendant and considerable cost of financing stocks", production at Rustenburg is to be cut to 60 per cent of last year's output.

The extent of the cut is perhaps unexpected in view of the note of cautious optimism sounded by Mr. Engelhard last week (*The Mining Journal*, December 13, 1957, page 719). Despite the existing situation, however, there is certainly no cause for pessimism so far as platinum's long-term future is concerned, though it now appears that the turning point may be a little further off than seemed probable before the economic horizon in the United States became obscured by uncertainty and lack of confidence.

Assuming no further deterioration in the position, the curtailment of South African production should restore stability to the platinum market, thus paving the way for future recovery.

Full details of the cutbacks can be found on page 756.

KANSANSHI WAS LOSING MONEY

The Rhodesia-Katanga Co. have recently issued a statement on the position and prospects for the Kansanshi Copper Mines at which all work ceased last month owing to flooding.

The circular now published states that before the mine was flooded it was producing about 400 l.tons of copper in concentrates monthly, and was losing money at the current copper market quotations. Accordingly, consideration was then being given to raising production to offset the low metal price. However, the ore reserve position was not sufficiently strong to justify a sustained output beyond the production rate of 400 l.tons of copper per month.

The circular states that production, to be profitable, must be on a larger scale than in the past, which would involve the oxide ore reserves on which investigation has been proceeding for some time. While these investigations have not succeeded in finding a method by which these reserves can be concentrated by flotation or gravity they have shown that they can be leached with sulphuric acid, and that such a process may be economic in the case of the higher-grade oxide ore. That being so, Rho-Kats point out the obvious advantage of undertaking the leaching process on the spot. It is not yet known whether the sulphide ore reserves present are sufficient for this purpose, or indeed of the process proving economically worthwhile. But the possibility does exist of the leaching process being carried out with sulphuric acid imported from the Copperbelt.

If leaching were a practical proposition the metallic copper would be produced by electrolytic deposition, thereby saving the heavy transport costs of concentrate. In turn, the heavy requirements of electric current to effect this process would necessitate an electric transmission line being built to connect the mine with the Copperbelt grid. This would save the transport costs of fuel oil which have placed a swingeing burden on the company. These proposals are now the subject of close investigation which, in addition, must include metallurgical testing and preparation of plans and estimates for the several major items of work involved. These studies will take at least six months to complete, after which time the consulting engineers will submit their report.

Meanwhile, the circular declares, there is nothing to be gained at present copper prices by re-opening the mine for the extraction of only the sulphide reserves since the cost of dewatering the mine and of establishing a permanent pumping system of greater capacity and security would be heavy.

LONDON MARKET HIGHLIGHTS

Kaffirs started the week to December 18 in fine fettle under the influence of the generally excellent dividend news. Towards the close of the period, the usual Christmas influences lowered the volume of business and prices were inclined to ease off.

The undertone of the market remained as good as ever and it was being predicted that the New Year should bring a continuation of the recent upward movement. There is no doubt that the recent spate of dividends has done a great deal to restore confidence in this market.

Finance Houses remained firm during the past week. There was steady support for Central Mining (59s. 9d.) and Rand Mines, while buyers remained impressed by the rise in gold share dividend income which must now be flowing into General Mining (80s.). Also good were Anglo American, which rose to 127s. on the success of their note issue, presently quoted at ½ premium.

Among individual mines, Free State Geduld climbed to a 1957 high of 83s. 9d. in front of next month's new issue, which is to be made at 80s. Blinkpoort rose to 42s. 3d. in recognition of their stake in F.S. Geduld. P. Brand and Welkom, which has been lagging behind recently, made up much lost ground, to 51s. 3d. and 15s. 6d. respectively.

Other interesting spots included the steady Cape support for Winkelhaak (17s. 6d.) which continues to intrigue local observers. Vaal Reefs benefited from yield considerations, but the Hartebeest dividend failed to reach the more optimistic anticipations and the shares became subdued at around 61s.

There was not a great deal of alteration in Diamonds at first, in spite of the rather gloomy trend of Wall Street. Later, fears that current quarter's diamond sales may be lower caused a sharp recession in share prices and De Beers dropped 5s. to 81s. 3d. Platinums came back on the news that Rustenburg is to cut production by 40 per cent.

Coppers and Lead-zincs again wilted with the depressing level of metal prices, and the latter, after rallying from their earlier weakness, once more became an uncertain market. Chief interest in the Tin group was the surprise decision by Beralt to make a special payment out of tax write-backs in lieu of an interim dividend. Previous optimistic hopes that only a small reduction in the interim would be made were thus shattered and the shares dropped 2s. 9d. to 28s. 6d. Elsewhere, a dividend shock came from Consolidated Murchison, the big South African antimony producer. In this case, the final was cut to 1s. 9d., making 5s. 6d. against 12s. 6d. in the previous year. This was well below market estimates and in view of the earlier steadiness of the shares, the price toppled several shillings to a rather nominal 28s. 9d.

TANKS' RECORD YEAR

Like its predecessor, the year ended July 31, 1957, broke all profit records for Tanganyika Concessions, and a taxed profit of £4,309,796 (an increase from £3,982,612 last year) is the outcome. Tank's income derives from two principal sources: a 14¼ per cent interest in the capital shares of Union Miniere du Haut Katanga, and a 90 per cent holding in the Benguela Railway.

Income from the Union Miniere holding increased in the twelve months to June from £2,840,745 to £2,945,884. The Belgian metal giant itself broke several production records, among them that for copper, but it should be noted that Union Miniere's financial year ends in December and the effect of the lower metal markets will not be felt by Tanks until next year's accounts.

Similarly, the Benguela Railway picture is only complete to the end of last year. The company substantially improved on its 1955 working revenue in this period, the respective figures being

146,093,217 Esc. and 221,811,958 Esc., while capital expenditure commitments have been reduced to about 35,000,000 Esc.

Tanks are recommending a final dividend of 6s. 6d. per unit, which makes a total of 9s. 6d. for the year. This compares with 9s. last year. A scrip issue of one-for-one is also proposed.

PAHANG AND THE TIN QUOTA

The restriction of tin output which came into being at the beginning of this week for an initial period of three months, will have wide repercussions on the tin mines participating in the scheme.

Most companies are either dredging or hydraulicking companies. Pahang Consolidated, which is a lode mine, estimates that its quota over the next three months will average out around 135 tons of tin concentrates a month. This, it is to be noted, compares with an average monthly output of 218 tons for the year ended July 31, 1957.

It is quite obvious that a cutback in production of this magnitude will hit the company pretty hard, and it can only be hoped that a revival of demand for tin during the first quarter of next year will render the continuation of the export quota scheme unnecessary after March 15, 1958.

However gloomy reading this may be for shareholders in Pahang Consolidated, they have yet to derive benefits from the company's position as an overseas trading corporation. This has not yet been clarified with the taxation authorities, but any benefits accruing will appear in the accounts for the current year.

Mr. G. H. Fairmaid, chairman and managing director, also gives his views on what the likely effects will be of the sudden imposition of the restriction scheme and these can be found on page 758 of this issue.

N. KALGURLI'S TAX POSITION

Mr. H. A. Kemlo, chairman of North Kalgurli (1912), Ltd., in his annual statement to shareholders, a lengthy extract of which appears on page 757 of this issue, states the company's position *vis-à-vis* shareholders.

As an overseas trading corporation, Mr. Kemlo says that the company will be in as good a position tax-wise as it would be if it were domiciled in Australia, with the difference that U.K. income tax at the standard rate will have to be deducted from dividends and paid over by the company to the Inland Revenue. Shareholders who are not resident in the U.K. will be entitled to claim repayment of the tax in full, and shareholders who are resident in the U.K. will be entitled to claim any reliefs to which they may be entitled in the usual way. This repayment procedure for non-resident shareholders will not apply to the final dividend now being declared but to all future dividends.

LAMPA'S COPPER CUSHION

Lampa Mining, the United Kingdom registered copper silver mine operating in Peru, was able to produce a satisfactory report to shareholders in respect of operations for the year ended June 30, 1957, due to its policy of selling its copper forward. This cushioned the company for some time against the drop in copper prices, but in March last, when these forward sales were exhausted, the company was exposed to the full impact of lower copper prices. Because the slide in the copper quotation has been so persistent, the company has quite understandably shifted its top priority from shareholders' immediate needs to the company's longer term requirements of weathering the present period of low prices for copper and speeding the development of the segregation process. In its endeavour to build up its financial strength, the company will henceforward be able to take full advantage of the very generous provision in the Peruvian Mining Code for depletions of mining properties, as it qualifies as an Overseas Trading Company. Further details of the company's present position and future prospects will be found in the statement by Chairman Mr. J. Shirley Esplen, which appears on page 756 of this issue, and in the accounts reviewed on this page.

TRAINING POLICY AT GOLD FIELDS

Mr. Robert Annan in his annual statement to shareholders of Consolidated Gold Fields, a lengthy extract of which appears on page 755 of this issue, gives an encouraging picture of the progress made by the South African gold mining industry.

During the year ended June 30, 1957, the output of gold increased by more than 1,250,000 oz. to a total of just over 16,000,000 oz. without any significant change in the total tonnage of ore milled. In spite of an increase of costs, the working profit from gold rose by 16.2 per cent to £54,000,000, while the profit from uranium, before providing for loan repayments, rose by nearly a third to £28,750,000, and the total of dividends paid increased by more than £6,000,000 to £31,500,000.

Labour and productivity have always been two of Mr. Annan's prime concerns. A new training centre has been opened at Venterspost this year, and the value of Gold Fields' policy in this direction is clearly shown by an increase per man-shift of no less than 47 per cent over the past eleven years. Mr. Annan points out that were it not for this improvement, the group's present labour force of 40,000 would have required an addition of a further 18,000 men to produce the present output.

FAITH PERSISTS IN GEITA

Rarely can such persistent faith have been shown in a gold mine that does not make money than in Geita which is situated in Tanganyika and in which Kentan Gold Areas holds a 78 per cent interest. Consolidated Gold Fields of South Africa are the consulting engineers, but not even their "know-how" has so far been able to make an economic proposition out of Geita. But it is still not intended to give up. Once again funds have run out, but another £200,000 is to be put in jointly by Gold Fields and Kentan at 6 per cent. Interest on this and previous loans is being waived until July 1 next.

Kentan itself also has no money and is providing its portion by a further borrowing of £100,000 (raising the total to £137,500) from Tanganyika Holdings at 6 per cent, but interest is likewise being waived until July 1. Kentan also has a loan of £250,000 from Tanganyika Concessions (which jointly owns Tanganyika Holdings with Zambesi Exploring). This carries interest at 6 per cent and also an option to subscribe for Kentan 1s. shares at 1s. 6d. in respect of £200,000 and at par in respect of £50,000. Present price of Kentan is 3d.

It is now planned to raise the milling rate at Geita from the recent level of about 25,000 tons a month to 30,000 tons by next July. It is expected that the mine can be brought to a "profit accumulating position" by mid-1960 without further calls for finance, but it is at the same time stressed that this is providing there is no further inflation of working costs. Anyway, Gold Fields state that financially this is their final contribution. It thus seems as though there is currently sufficient faith in Geita for a chance to be taken that economic conditions for gold mining will improve. This leaves Kentan in its present attenuated financial position as little more than a gamble on the eventual possibility of a higher gold price.

Beralt's O.T.C. Status Pays Dividends.—Beralt Tin and Wolfram announce that, assuming the company qualifies as an O.T.C. as from September 14, taxation in the year to March 31, 1957, will be about £200,000 less than the amount provided in the accounts. A special dividend of 2s. per stock unit is to be paid on January 22 next. However, in view of this dividend and the continued low wolfram price there will be no interim for the year to March 31, 1958, and the next payment will depend on the final results for that year.

Lampa Profits Down.—At £52,637, Lampa Mining's taxed earnings in the year ended June 30, 1957, were £10,000 down on the previous year's £62,987. However, next year's accounts may reflect O.T.C. benefits, whereas the British tax figure for this year of £4,100 is calculated on the usual basis. A recommended final dividend of 10 per cent makes a total of 20 per cent for the year on a capital of £105,000, against last year's total of 40 per cent (including a Jubilee bonus of 20 per cent) on £70,000. The meeting is being held in Liverpool today.

Meru's Ups and Downs.—In the year ended June 30, 1957, Meru Tin made a net loss of £1,770 compared with £887 previously. Actual mining operations showed a profit of £571, which would have been considerably better had it not been for a drought which brought hydraulicking to a complete standstill for three months. Results for the first three months of the current year showed profits of £2,025, £332 and £729 respectively. Meeting, London, December 30. Mr. G. A. Williamson is chairman.

Burma Mines Taxation.—No response has yet been received by Burma Mines to their representations regarding the discriminatory effect of the new Business Profits Tax, which, it is believed, is unintentional. The company's report for the twelve months ended June 30 last appears on page 758.

New Modderfontein.—The capital repayment of 6d. per share by New Modderfontein Gold has been confirmed by the court, and will become effective on December 31.

CONSOLIDATED GOLD FIELDS OF SOUTH AFRICA

RECORD PRODUCTION AND PROFITS

MR. ROBERT ANNAN'S REVIEW OF ACTIVITIES

The Annual General Meeting of the Consolidated Gold Fields of South Africa, Ltd., was held on December 12 in London.

Mr. Robert Annan, the chairman, opened the meeting by saying:—

Gentlemen, before proceeding to the business of the meeting, I should like to express the deep regret which we feel at the death of Sir Ernest Oppenheimer. He was not only a great leader in the mining industry; he was a man of high purpose in serving the best interests of the Union of South Africa, the Central African Federation and all the peoples therein. He will be greatly missed by them all.

Dealing first with the Accounts, the Authorized Capital of the Company was increased by the creation of a further three million Ordinary Shares of £1 each on June 28. Of these, 979,202 have since been issued at £2 each and a maximum of 783,362 are earmarked against the conversion rights attaching to the £1,958,404 6 per cent Convertible Unsecured Loan Stock 1977-82, which was issued at the same time at par, leaving 1,237,436 shares at the disposal of the Board.

The proceeds of both these issues have been made available on similar terms and conditions to the operating subsidiary, New Consolidated Gold Fields, Limited, which also increased its Authorized Capital by three million £1 shares on June 28. The increases in Authorized Capital are shown in the Balance Sheets of both Companies, but the share issues and loans are not yet reflected in the figures of Issued Capital as the application monies were payable after the end of the financial year.

Operating Company's Accounts

The Accounts of the operating company show a working profit for the year of £2,788,000. The principal contribution is made by dividends and interest on our investments, which have shown a steady increase over the past four years and now, at £2,132,000, exceed £2 million for the first time. This is due mainly to increased dividends on our holdings in the Far West Rand and the Orange Free State. Profit on realization of investments and sundry revenue is also increased by £696,000 to £1,153,000. This is a fluctuating item which on this occasion includes the sale of our interest in the Trinidad Oil Co., Ltd. Present conditions indicate that the increased profit from this source is not likely to be maintained in the current year. After charging £497,000 for administration and depreciation of Fixed Assets and £1,076,000 for overseas and United Kingdom taxation, the net profit for the year is £1,712,000, an increase of £640,000 over the previous year. £930,000 has been appropriated to Investment and Exploration Reserve and £30,000 to Provision for Pensions. After meeting the Preference Dividends, the balance available out of the year's profits is £649,000. An interim dividend of 1s. per share was paid in July and a final dividend of 3s. per share—for which the recently issued shares rank—has now been declared. These together absorb £647,000, leaving a small increase in the balance of unappropriated profits.

Net profits for the year attributable to the operating Company and retained by its subsidiaries amounted to £535,000.

The capital and reserves of the operating Company and its share of those of its subsidiaries total £17,473,000. This is represented by Fixed Assets £1,193,000, Investments at or under cost £14,603,000 and Net Current Assets £1,677,000.

An interim dividend of 1/- per Ordinary share less tax was paid in July and as the operating Company has now declared a final dividend of 3/- per share, less tax, your Directors recommend the payment of a like dividend on the increased Ordinary Capital of the parent Company, which, if approved, will be paid on December 19.

Industry's Progress

In the Union of South Africa the gold mining industry continues to make progress. In the twelve months which ended on June 30 last there was no significant change in the tonnage of ore milled but the output of gold increased by more than a million and a quarter ounces to a total of just over sixteen million ounces. In spite of an increase in costs the working profit from gold rose by 16.2 per cent, to £54 million. The profit from uranium—before providing for loan repayments—rose by nearly a third to £28¾ million and the total of dividends paid increased by more than £6 million to £31½ million.

These satisfactory results are due to the steadily increasing production from the newer mines, which has still not reached its peak.

Rise in Dividend Income

Our investment in South African gold mining is now predominantly in the new and higher grade mines. In the past year we received maiden dividends from Doornfontein and Harmony, and increased dividends from West Driefontein, Western Holdings and Hartebeestfontein. Increased dividends have also been declared by some of the older mines. Free State Geduld and Welkom declared maiden dividends after the close of our financial year.

The effect of all this is apparent in the steady rise in our dividend income over the past few years. Since 1953 our total dividend income has risen by 74 per cent while, in the same period, that part of the dividends derived from gold mines in the Union of South Africa has more than doubled. As many of the new mines have yet to reach full production the prospect for further increase in the future is encouraging.

The group of twelve producing mines under our administration achieved new records in tonnage milled, gold production, working profit and dividends declared, the decline in the oldest mines having been more than offset by the improved returns of West Driefontein and Doornfontein.

Western Deep Levels

A company, Western Deep Levels Ltd., has now been formed to operate a mining lease on the area lying to the south of Blyvooruitzicht and West Driefontein, to which reference has been made in previous reports. Initial operations are being financed by means of loans provided by a Syndicate in which we participate and which has rights to the underwriting and subscription of further capital at a later date. Vendor consideration has been paid and subscription rights will also accrue to the West Witwatersrand Areas, Blyvooruitzicht and West Driefontein companies.

Prospecting for extensions of the Witwatersrand System, in which we have engaged by ourselves or by taking participations with others, has continued during the past year. The results, with few exceptions, have not been encouraging and there are no new developments of importance to report.

Training Centre

We continue to expand our facilities for the training of supervisors, learners and labour, a matter to which we attach great importance. A new centre for the exclusive training of learners was established at Venterspost during the year. The result of the training which is given to all classes of employees has been most gratifying and shows up in a steady increase in efficiency over recent years. This is the most hopeful means of combating the rising tendency of working costs. The average output per man-shift of underground labour in our group of mines has risen by 47 per cent in the last eleven years. But for this improvement we would have required an addition of about 18,000 men to our present underground force of 40,000 to procure our present output. That the improvement was checked in the latter part of last year by a sudden influx of new recruits only goes to prove the benefit of training which is subsequently given.

Our interests in South Africa have been widened in the past year by the acquisition, with strong partners, of a controlling interest in the South-West Africa Company. This company is a producer of base metals, notably lead, zinc and vanadium, but also holds extensive mining and prospecting rights. The development of these rights is our main objective, and an active programme of exploratory development and diamond drilling is in progress.

Exploration Policy

Our policy of exploration in the search for new business has continued through the past year. In addition to our main centres in London and Johannesburg, we have representatives in New York, Canada, Australia, Rhodesia, and East Africa, under whom a number of field parties are engaged in the examination of projects in all stages of development which may be brought to us or be found in the course of our own exploratory work. Part of this is done in association with others, part by ourselves. Quite a number of propositions are under examination, but the past year has not brought any developments of note. Exploration is of necessity a long-term policy to be followed with a proper blend of enterprise and caution if the results are to justify the expenditure, some of which in the nature of things must be abortive.

The Kiabakari Gold Mine in Tanganyika and the Kyanite mine in Kenya are both being equipped and are expected to come into production in the near future.

For the future, we can expect a continued improvement in the returns from our South African interests to set against any falling off in the earnings in other fields. The gold mining industry in South Africa is in a very sound condition. By increasing efficiency and the introduction of new methods, better use is being made of the available supply of labour, both European and African, which is now more nearly adequate.

The report and accounts were adopted.

MALAYAN TIN DREDGING
and
SOUTHERN MALAYAN TIN DREDGING

MR. ERNEST V. PEARCE'S STATEMENT

The Annual General Meetings of Malayan Tin Dredging, Ltd., and Southern Malayan Tin Dredging, Ltd., were held on December 19 in London.

Mr. Ernest V. Pearce, Chairman, presided.

The following are extracts from his Statements circulated to Shareholders :—

In common with industry generally, whether in Malaya or esewhere, the trend of costs in almost every direction has been upwards and from all indications it seems likely to continue.

International Tin Agreement

The International Tin Council at its Meeting held on December 4 and 5 decided to restrict exports of tin from the six countries which are parties to the International Tin Agreement by imposing a cut of 28¼ per cent. of the annual rate of production for the period from December 15, 1957, to March 14, 1958.

The almost complete lack of consumer demand during the last few weeks, coupled with supplies coming forward from Russia and China, have resulted in a big increase in offerings to the market. As a result the Buffer Stock Manager has been obliged to make large purchases in order to support the floor price of £730 a ton, so much so that the initial contribution to the Buffer Stock which was made in cash must be nearing exhaustion and the second contribution of £3,650,000, the equivalent of 5,000 tons at £730 per ton has been called for and contributed. Further it is understood that the producing countries have agreed to pay the third contribution, either in tin or cash, within three months of the Buffer Stock holding 15,000 tons.

In case the steps taken to stabilize the position results in too sharp a rise in the price, the figure at which the Buffer Stock Manager is authorized to sell is reduced from £830 to £781 per ton.

Export Duty and Income Tax

During the ten years ended June 30, 1957, your Company has paid to the Government of Malaya in Export Duty £1,213,479 and its payments and liabilities in respect of Malayan tax for that period total £809,800, amounting together to £2,023,279.

During the same period gross dividends amounted to £2,020,000.

Corresponding figures for Southern Malayan Tin Dredging Ltd. were Export Duty £2,007,242 and Malayan Income Tax £2,061,800, together £4,069,042, while gross dividends amounted to £4,070,204.

Malayan Independence

The Federation of Malaya attained independence within the Commonwealth on August 31, 1957. We can, I think, look forward confidently to the continuance of that happy relationship which has existed in the past.

Research

No praise is too high for the work carried on by the Director and the very efficient staff of the Tin Research Institute in the interests of Producers and Consumers alike. The recent successful research regarding the use of certain organic tin compounds as pesticides and fungicides has aroused wide interest and there is every prospect that the use of these compounds will eventually absorb a considerable tonnage of tin.

General

The fact that we have been able to build up out of profits a Capital Reserve of £700,000 towards meeting the cost of the new dredge while at the same time paying reasonable dividends is, I think, sufficient justification of the conservative policy the Company has always followed in the matter of finance.

This same policy has been and is being followed in Southern Malayan Tin Dredging Ltd., in which we have a large holding and accounts in large measure for the strong position which both Companies occupy in the Malayan tin industry today.

THE LAMPA MINING COMPANY LIMITED

The 51st Annual General Meeting of The Lampa Mining Company, Limited, is being held in Liverpool this week. The following are extracts from the circulated statement by the Chairman, **Mr. J. Shirley Esplen.**

Smelting has continued smoothly during the year. Labour, material and freight costs have all risen, while the realized value per ton of the smelter product has fallen. Installation of the new discharge gear for the calcining furnace was only completed right at the end of the financial year. Since then tests have been made which proved quite satisfactory as regards the discharge gear itself, but the grinding and pelletizing section does not function well and will not until we re-equip it with a tube mill and other equipment. More tests are being made. With the heavy fall in the price of copper, it is more than ever necessary that we should seek a more efficient method of treatment than smelting.

Accounts and Future Prospects

Lampa qualifies as an overseas trading company and the taxation provisions are made on this basis. It may be considered that the accounts would have enabled us to distribute an even larger dividend. We consider, however, that this is a time for financial prudence, since our future capital requirements are likely to be heavy. The slump in copper is squeezing our profit margins very tightly, and the current financial year will show a heavy decline in profits as compared with the figures now before us.

POTGIETERSRUST PLATINUMS LIMITED
UNION PLATINUM MINING COMPANY LIMITED
WATERVAL (RUSTENBURG) PLATINUM MINING COMPANY LIMITED

(Each Incorporated in the Union of South Africa)

The Boards of Directors of the abovenamed companies draw attention to a statement issued by the Directors of Rustenburg Platinum Mines Limited, a copy of which statement is published below.

RUSTENBURG PLATINUM MINES LIMITED

(Incorporated in the Union of South Africa)

A statement by the Chairman of Rustenburg Platinum Mines Limited on the Company's affairs will be issued in the normal way prior to the Annual General Meeting to be held on January 30, 1958. Meanwhile it is considered advisable to comment on certain developments which have recently taken place.

The market for platinum for industrial purposes continues weak and there is at the moment a considerable over-supply of metal with supplies from Russian sources still coming forward. The open market prices of platinum continue to fall and in order to meet the prices quoted by the Company's competitors the price per ounce of platinums sold on its behalf was reduced on December 5, 1957, by £2 10s. 0d. in the U.K. to a range of £27 10s. 0d. - £28 10s. 0d. and in the U.S.A. by $7 to a range of $77 - $80.

It is not possible at this stage to make a reliable forecast of the trading results for the year, but the current level of sales of this Company's platinum is at the rate of approximately sixty per cent. of the level of sales during the year ended August 31, 1957.

In order to avoid, in so far as may be possible, over-production of platinum with its attendant and considerable cost of financing stocks, steps have already been taken, and further steps will shortly be taken, to reduce output for the current year to approximately sixty per cent. of the output for last year.

Members will see from the published Reports and Accounts, details of the estimated capital expenditure for the current financial year and of the excess expenditure on capital account at August 31, 1957, both of which have, in due course, to be financed out of profits. Appropriations from profits during the current year will, therefore, include a substantial sum towards meeting these commitments. The degree of absorption or release of funds by variations in stocks is dependent upon the ability of the mines to adjust production to levels commensurate with changes in demand. It is not possible at this stage to estimate what such variations will be during the current year.

It must be appreciated that any attempts to assess the results for the year ending August 31, 1958, are at present based on rapidly changing factors. It is probable, however, that the amount available for dividend during the current year will be substantially less than during the financial year ended August 31, 1957.

By Order of the Board,
JOHANNESBURG CONSOLIDATED INVESTMENT COMPANY, LIMITED,
London Secretaries,
D. L. REYNOLDS,
Secretary.

10 & 11 Austin Friars,
London, E.C.2.
December 10, 1957.

NORTH KALGURLI (1912) LTD.

SATISFACTORY PROFITS

The annual general meeting of North Kalgurli (1912), Ltd., was held on December 19 in London, **Mr. H. A. Kemlo,** chairman, presiding.

The following is an extract from his circulated Statement for the year to March 19, 1957:—

The Profit and Loss Account has a new item, "Concentrates awaiting treatment, £111,037". The explanation of this item is that the roasting Section of the extended C.P. Plant was not adequate during the year to treat the entire throughput of the Mill, with the result that a stockpile of concentrates accumulated to await roasting and further treatment. This stock of concentrates has been brought into the Accounts at its value at cost, which is lower than the estimated value of the recoverable gold content less expenses of treatment. When the concentrates come to be treated, as in fact a small quantity has been since the close of our mining year, the excess value will be realized and brought into profit.

The profits before taxation (£115,211) were rather more than the profits of last year (£110,243), and they must be considered very satisfactory when it is borne in mind that alterations to the Treatment Plant were in progress throughout the year, and the full benefit of the extensions by way of reduction of treatment costs has not yet been felt. The provision for tax in the Profit and Loss Account is only £35,042 this year against £58,143 last year. This is because we now rank as an Overseas Trade Corporation under the Finance Act, 1957, and no further provision has to be made for United Kingdom income tax on our mining profits. The £35,042 is Profits Tax (which we shall not have to pay after this year) together with a small provision for income tax on our non-mining profits, against which there is an adjustment in our favour on last year's taxes. A final dividend of 6d. a share is proposed, which will absorb £47,438, leaving £51,991, of which it is proposed to transfer £30,000 to reserve, and to carry forward £21,991

Position as an Overseas Trade Corporation

Before we turn to the Balance Sheet I should like to say a little more about our position as an Overseas Trade Corporation. In November, 1955, we made an application to the Treasury for permission to transfer our domicile to Australia. This application was refused. In November, 1956, we submitted a further application, with the vigorous backing of the Government of Australia and the Government of Western Australia. This application was also refused, but while it was still pending the Budget proposals for tax relief to Overseas Trade Corporations came before Parliament, and in due course they became law. Although no reason was given for the refusal of our second application to the Treasury, I have little doubt that it was connected with the pending Overseas Trade Corporation legislation. As an Overseas Trade Corporation this Company will be financially in as good a position tax-wise as it would be if it were domiciled in Australia, but the difference is that United Kingdom income tax at the standard rate will have to be deducted from dividends and paid over by the Company to the Inland Revenue. Shareholders who are not resident in the United Kingdom will be entitled to claim repayment of the tax in full, and shareholders who are resident in the United Kingdom will be entitled to claim any reliefs to which they may be entitled in the usual way. I hope that the repayment procedure for non-resident shareholders will be simple and expeditious. We are making inquiries and shareholders will be given full information as soon as it is available. This repayment procedure for non-resident shareholders will not apply to the final dividend now being declared, but to all future dividends.

We retain our interest in the Kalgurli Ore Treatment Company, Limited, but we have not treated ore there since September, 1956. During the year we received 934.69 oz. of gold from clean-ups at this Plant. For some time Gold Mines of Kalgoorlie, Limited, have been using the crushing and roasting sections, and the future of the Plant is still under consideration.

Our ore reserves increased during the year by 27,000 tons, and now stand at 2,244,482 long tons having an average gold content of 5.38 dwt. per ton.

Since the close of the year the footage of Development and Diamond Drilling has been somewhat increased, with the objective that the mining operation should become more selective as to grade, and that the grade of broken ore stocks, from which some 90 per cent of current mill feed is drawn, should be gradually increased.

On the whole, satisfactory and encouraging results have been obtained, both from extensions of known ore bodies and from new exposures.

Shaft Programme

The programme of deepening the Main Shaft by 500 ft. (i.e. to No. 18 Level with skip-loading facilities below) is making satisfactory progress.

Pilot winzes are well advanced and will be completed between present shaft bottom below No. 14 Level and No. 18 Level within the next few weeks. The Kalgurli Shaft has been deepened by 200 ft. and a skip-loading station installed below No. 22 Level. On No. 22 Level a Haulage Drive has been advanced to a point about halfway to Main Shaft. (Kalgurli No. 22 Level is at the same depth horizon as the proposed No. 18 Level Main Shaft.)

The Haulage Drive will connect with the Main Shaft pilot winze, which will then be stripped to full shaft size and timbered, the spoil being drawn off at No. 18 Level and transported to Kalgurli Shaft for hoisting to surface. By this means the Main Shaft sinking programme can be completed without serious interference with normal hoisting duty, and at substantially less cost than sinking direct.

Facilities for hydraulic filling of stopes have been completed at Croesus Section and brought into successful operation. Similar provision for Main Shaft area is almost complete. This will enable the mining of some higher grade blocks of ore which have hitherto been classed as unavailable because of weak ground conditions.

The report was adopted.

EXPERIENCED CATERER
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Desires position overseas. West African, Malayan, and Pacific Isles experience. Able control and teach Native labour. Excellent references. Write Box 613, *The Mining Journal, Ltd.*, 15 Wilson Street, Moorgate, London, E.C.2.

CHIEF ENGINEERING SUPERINTENDENT REQUIRED

for Mining Company operating in India. Should have had considerable electrical experience combined with mechanical knowledge of opencast and underground plant in order to supervise engineering operations on several mines.

Salary with allowances in the region of £3,000 per annum depending on age and experience. Good leave terms. Free passages, furnished accommodation and medical attention. Provident Fund.

Reply giving full details of qualifications, experience and age to Box No. 611, *The Mining Journal, Ltd.*, 15 Wilson Street, London, E.C.2.

AUSTRALIA: UNIVERSITY OF QUEENSLAND

Applications are invited for the position of SENIOR RESEARCH OFFICER IN THE DEPARTMENT OF MINING AND METALLURGICAL ENGINEERING. Applicants should be graduates in mining/metallurgical engineering from a recognized University, or with equivalent qualifications; they should have had research experience in milling and treatment problems. Experience with radioactive ores, though desirable, is not essential. The officer will be afforded an opportunity of enrolling for study leading to a higher degree.

Salary, £A1,850 per annum.

Further particulars are obtainable from the Secretary, Association of Universities of the British Commonwealth, 36 Gordon Square, London, W.C.1.

Applications close in Australia and London on *15th February, 1958.*

Inco Wins Oscar.—The International Nickel Co. has won the award sponsored by the "Financial World" for the best 1956 annual report.

National Bank of India.—Resolutions passed on December 3 changing the name of the National Bank of India to "National Overseas and Grindlays Bank, Ltd." will take effect on January 1, 1958.

British Overseas Mining Association.—The 13th progress report of the British Overseas Mining Association reveals that it is considering the terms of a letter to the Chancellor of the Exchequer reiterating its belief that the scope of O.T.C. provisions should be widened. The annual meeting will be held on December 30 in London.

PAHANG CONSOLIDATED

SATISFACTORY RESULTS

The fifty-first annual general meeting of The Pahang Consolidated Company, Ltd., was held on December 12 in London, **Mr. G. H. Fairmaid, M.I.M.M.,** Chairman and Managing Director, presiding.

The following are extracts from his circulated address for the year ended July 31, 1957:—

Results can again be considered satisfactory. During the year 195,800 tons of ore was treated with an output of 2,612.82 tons of mill tin oxide. An amount of 0.32 tons of alluvial tin was obtained by tributors.

Development footage was 19,144 ft. of which 7,806 ft. was done in the Myah Section and 10,688 ft. in the Willinks Section.

In Myah Section some new ore was found in the bottom levels, but on the whole development has been disappointing.

In Willinks Section, interest has centred on the new lode exposed in the Xcut NE 31 on the 700 ft. Level, where 551 ft. of payability has been proved, while at the 600 ft. Level, 223 ft. of payability is already proved. Development of this lode is being continued as speedily as possible.

On the 1,200 ft. and 1,300 ft. Levels, crosscutting towards the Kabang Series of lodes continues. It will be a further twelve months before this area, in which lodes containing tin are known to occur, is reached. Diamond Drilling has been carried out in the Pontifex Lode in the Sungei Padi and on two lodes in the Kabang Valley, but results were negative.

The Accounts show that after charging London General Expenses and crediting Interest and Dividends received, there remains a balance of £342,536. Depreciation amounts to £54,350, a transfer of £6,469 has been made to write down the Investment in The Kuala Reman Rubber Estates, Ltd., and £168,276 has been provided for Taxation. This leaves £113,441 to which is added £97,920 brought forward from the previous year. Out of this Dividends of 15 per cent on the Preference and 50 per cent on the Ordinary Stock totalling £116,438 have already been paid, leaving £94,923 to be carried forward on Profit and Loss Account.

Chairman's Additional Remarks

The Chairman, addressing the meeting, said:

This Company's position with regard to qualification as an O.T.C. has not yet been clarified with the Taxation Authorities, but it is expected any benefit to be derived therefrom will appear in the Accounts for the current year.

It has been announced that the production from European Mines is to be 62.25 per cent of the average production in the years 1953-57 for the three months commencing December 15, 1957. Sudden restriction on this scale can have no other effect than to cause unemployment and hardship throughout Malaya, and this, coupled with the call-up of a further contribution to the Buffer Pool, will make it difficult for any company operating in Malaya to do more than pay its way on the reduced production. This Company's quota will be about 135 tons per month.

The report and accounts were adopted.

Publications Received

British Ropes, Ltd., have recently published an 8-page booklet entitled *How to Make a Long Splice*. The work is illuminating and is illustrated in colour.

★

The British Wood Preserving Association has issued its *1957 Convention Record*, which contains copies of the seven papers presented at the Convention, together with a verbatim report of the discussions. Copies are obtainable from the Association's office at 6 Southampton Place, London, W.C.1. Price 12s. 6d. post free.

★

The Mineral Resources Division and Mines Branch, Department of Mines and Technical Surveys, Ottawa, Canada, has published *List 2-1, Metal and Industrial Mines in Canada*, which replaces a series of separate lists published at intervals since 1914. Price 25 cents.

★

The story of Malaya's tin mining industry is told in *Mining Tin*, a pictorial record with text in three languages, prepared by the Publicity Management Committee of the Tin Industry (Research and Development) Board, No. 1 Post Office Road, Ipoh, Perak, Malaya. The illustrations include some of the finest photographs of tin mining ever taken.

★

A variety of useful work in many countries is recorded by the British Council in its Annual Report, 1956-57. The Council's new centre in Kuala Lumpur was formally opened on May 16, 1956. The report notes that the transformation of the Gold Coast into Ghana has in no way lessened the activities of the Council in that country. In Britain itself, one of the Council's most important tasks is the arrangement of programmes for professional, technical and academic visitors from overseas. In the last five years the Council has assisted some 7,000 visitors in the sciences, many of whom wished to survey instruments and equipment built in Britain.

BURMA MINES LIMITED

The following summarises the Operating results of BURMA CORPORATION (1951) LIMITED (Incorporated in the Union of Burma and jointly owned by Burma Mines Limited and the Union Government) for the TWELVE months ended 30th June, 1957.

ORE EXTRACTION

Quarter ended 30th September, 1956	31,597 tons
Quarter ended 31st December, 1956	30,342 tons
Quarter ended 31st March, 1957	28,059 tons
Quarter ended 30th June, 1957	27,029 tons
	117,027 tons

PRODUCTION

Quarter Ended	*Concentrating Ore Milled (dry tons)*	ASSAYS *Ozs. Silver*	*% Lead*	*% Zinc*
30th September, 1956	31,451	13.43	16.67	10.04
31st December, 1956	30,615	13.98	16.91	10.56
31st March, 1957	28,321	13.69	16.63	11.26
30th June, 1957	27,914	13.41	16.18	12.09
	118,301	13.63	16.61	10.95

Marketable Products were as follows :—

Quarter Ended	*Refined Lead Tons*	*Refined Antimonial Lead Tons*	*Refined and Dore Silver Fine Ozs.*	*Copper Matte Tons*	*Nickel Spiess Tons*	*Zinc Concentrates 54%-58% Zn. Dry Tons*
30th September, 1956 ..	3,787	—	318,384	88	10	3,479
31st December, 1956 ..	3,423	157	316,612	103	135	3,328
31st March, 1957 ..	3,614	—	331,919	130	141	3,834
30th June, 1957 ..	3,068	134	271,344	48	12	4,281
	13,892	291	1,238,259	369	298	14,922

ESTIMATED REVENUE AND EXPENDITURE

	For Quarter Ended 30th June, 1957		*For the Twelve Months Ended 30th June, 1957*	
Gross Revenue (after adjustment of value of Metal Stocks) ..	K.85,84,700	£643,852	K.3,61,31,600	£2,709,870
Operating Expenditure ..	K.73,05,600	£547,920	K.2,59,26,800	£1,944,510
Operating Profit ..	K.12,79,100	£95,932	K.1,02,04,800	£765,360
Taxation ..	K.9,78,100	£73,357	K.58,25,000	£436,875
Depreciation on Machinery and Plant, etc..	K.2,76,000	£20,700	K.9,55,800	£71,685
Capital Expenditure ..	K.4,98,400	£37,380	K.17,43,900	£130,792

The volume of sales was substantially higher than in the preceding Quarter but Revenue again reflects the continued recession of metal prices which, in particular, greatly reduced the value of metal stocks at the end of the Quarter.

The increase in Expenditure is mainly due to realisation charges on the larger volume of sales.

The provision for Taxation includes the balance of the additional Business Profits Tax to which reference was made in the previous Report, there having been no response as yet to the representations made to the Government of the Union of Burma in regard to the discriminatory character of this impost. Net Profit for the June Quarter is thus reduced to K.25,000 (£1,875).

After deducting the foregoing estimates for Taxation and Depreciation the estimated Net Profit for the year is K.34,24,000 (£256,800) which compares with a Net Profit of K.70,14,755 (£526,107) for the previous year.

Sales of pre-war stocks of Zinc Concentrates have again made a substantial contribution to the financial results.

The Sterling figures shown are based on a Rate of Exchange of 1s. 6d. per Kyat.

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